

*The Cotton Gin and Oil Mill*

# PRESS

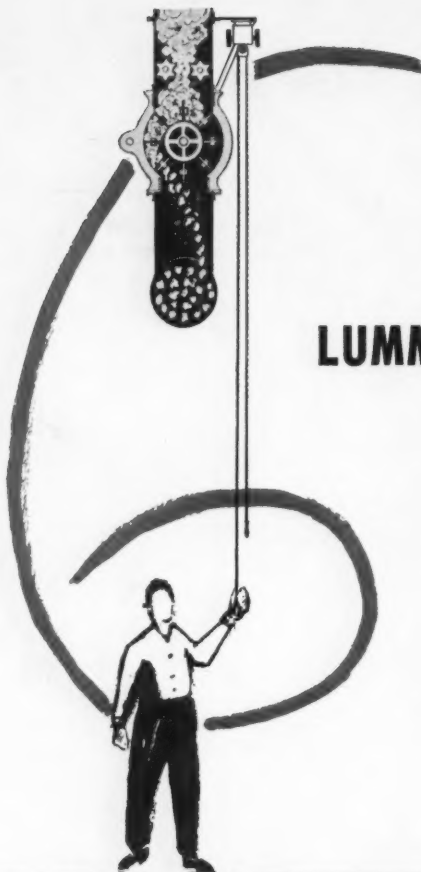
A PROGRESSIVE AND RESPONSIBLE PUBLICATION

NOVEMBER 19, 1955

56<sup>th</sup>  
year

THE MAGAZINE OF THE COTTON GINNING  
AND OILSEED PROCESSING INDUSTRIES





## CONTROL RATE OF TELESCOPE FLOW FROM THE GIN FLOOR

No matter how green the man on the wagon, Lummus has cured the problem of slugging or choking with

### LUMMUS AUTOMATIC SUCTION CONTROL

The ginner himself, from the gin floor, now can control the rate of flow; set it to his choice; and have it automatically maintained at the rate he has chosen. Lummus Automatic Suction Control is all mechanical and fool proof — can be installed where there is no electric power. Write for full information.

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Write for our Bulletin 224, which  
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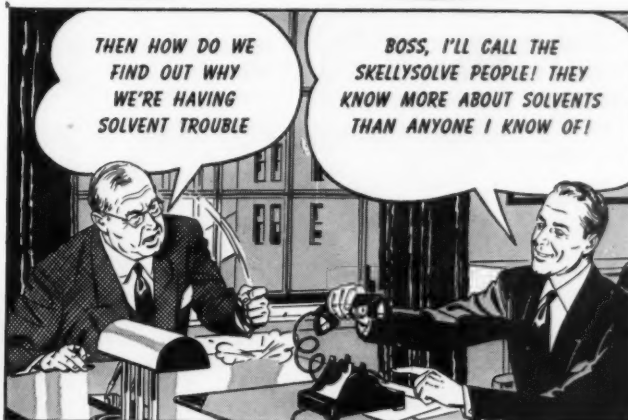
ATLANTA

DALLAS

MEMPHIS



**BUT BOSS—I'M NO SOLVENTS EXPERT—**



THEN HOW DO WE  
FIND OUT WHY  
WE'RE HAVING  
SOLVENT TROUBLE

BOSS, I'LL CALL THE  
SKELLYSOLVE PEOPLE! THEY  
KNOW MORE ABOUT SOLVENTS  
THAN ANYONE I KNOW OF!

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HERE MAY BE YOUR TROUBLE...

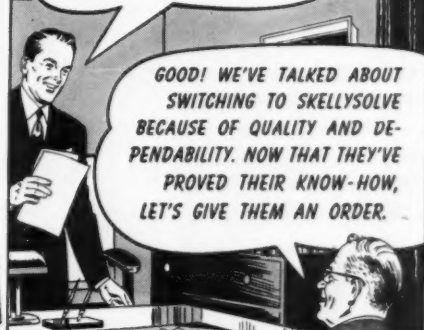


**HERE'S WHY SKELLYSOLVE  
"KNOW-HOW" IS FAMOUS:**

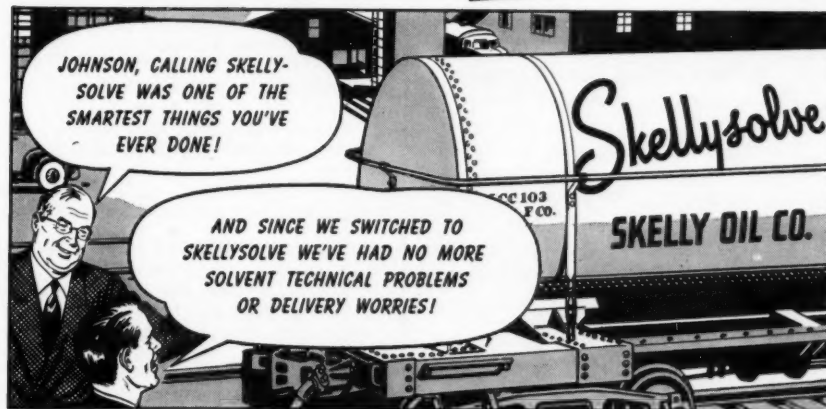
1. Skellysolve technical field-men have years of experience in the field.
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3. Skellysolve has been a leader in constant quality-control testing.

AND—The Skellysure delivery system always gives you fast, dependable shipments.

BOSS! THE SKELLYSOLVE MAN  
HELPED SOLVE OUR PROBLEM!



GOOD! WE'VE TALKED ABOUT  
SWITCHING TO SKELLYSOLVE  
BECAUSE OF QUALITY AND DE-  
PENDABILITY. NOW THAT THEY'VE  
PROVED THEIR KNOW-HOW,  
LET'S GIVE THEM AN ORDER.



JOHNSON, CALLING SKELLY-  
SOLVE WAS ONE OF THE  
SMARTEST THINGS YOU'VE  
EVER DONE!

AND SINCE WE SWITCHED TO  
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Les Weber  
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(NOTE: Generally, cottonseed oil mill listings in the United States show officers, addresses, equipment and rail location. Many of the other vegetable oil mill listings in the United States, Canada and Latin America also give this information.)

**Price \$10**

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3116 Commerce

P. O. Box 7985

Dallas, Texas

**laugh it off**  
 .....  
 • • •

It looked as though both the hero and the heroine of the Western movie were doomed. They were surrounded completely by angry redmen. One of the little boys in the front row sniffed, "If he had kept his eye on the Indians instead of the girl, this never would have happened."

• • •  
 "This bed," the antique dealer confided, "belonged to my own great-great-grandmother."

"Sure," the unbelieving prospect replied, "no doubt one of the beds Washington slept in."

"Very likely, sir—though, of course, we could never get great-grandmother to admit it."

• • •  
 The boy bubble was chasing the girl bubble because he wanted to see her bust.

• • •  
 Fred—What was all the excitement at Adam's place last night?

Tim—Oh, a girl was playing a violin in her pajamas and the string broke.

Fred—What—on her violin?

Tim—Naw—on her pajamas.  
 • • •

One evening a young matron was returning from a class in First Aid, and she came upon a man sprawled face down on a darkened side street.

"Ah!" thought the girl, "Providence has led me hither to minister to this poor unfortunate."

Parking her car nearby, she rushed over and began artificial respiration.

Presently the man looked up, and speaking with difficulty, said: "Look sister, I don't know what in thunder you're up to, but I'm holding a lantern for a guy working down in this man-hole."

• • •  
 "If you had your life to live over," John Barrymore once was asked by reporters, "do you think you'd make the same mistakes again?"

"Certainly," said the actor, smiling reminiscently, "but I'd start sooner."

• • •  
 Junior—"Grandpa, now that you're 100 years old, do you still dream about women?"

Grandpa—"Yep, I still dream about 'em, but I've stopped chasing them."

• • •  
 Wife—Why did you tear out the back part of that new book?

Absent Minded Doctor — Excuse me, dear, the part you speak of was labeled Appendix, and I took it out without thinking.

• • •  
 A man was complaining that he had just bought a prefabricated house, and that it had, in the end, cost him \$50,000.

"Fifty thousand!" exclaimed one of his friends. "Isn't that an awful lot to pay for a prefab?"

"Yes," said the home-owner. "It wasn't so much to begin with, but I told that factory I wanted it right away, and they sent it to me air mail."

• • •  
 A little girl in the second grade had been told to bring her birth certificate at the opening of school. She was found by the teacher sobbing in her seat. When asked what the trouble was, she said: "I forgot to bring my excuse for being born."



# When A Farmer Asks...

"What is the best  
seed treatment?"

Can you give him the facts?

For the man who wants the best in seed treatment, there is but one answer... the modern PANOGEN PROCESS. Here's why:

**FIRST**, liquid PANOGEN is the only seed disinfectant containing *cyano (methylmercuri) guanidine*. Tests prove this a most effective mercury compound for controlling seed-borne diseases of cotton, wheat, oats, barley or sorghum.

**SECOND**, because this active ingredient is so effective, liquid PANOGEN can do its job with *less mercury*. This assures greater safety from germination injury.

**THIRD**, liquid PANOGEN's powerful, fast-working vapor action penetrates every crack, pore and crevice in the seed. It even destroys diseases under the hull!

**FOURTH**, liquid PANOGEN helps control a wide variety of blights,

boll rots, and other seed-borne and soil-borne diseases. Because it attaches itself tightly and permanently to the seed, it continues to give protection after planting. Experiment Station studies show that PANOGEN-treated seed can be expected to come up faster, give better stands, produce higher yields and better quality.

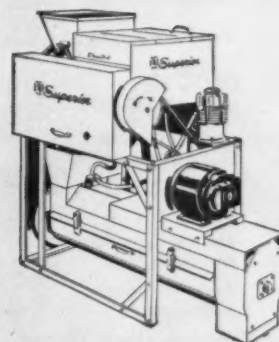
**FIFTH**, because PANOGEN-treated seed is colored pink, (like this page) the planter can *see for himself* that each seed is treated.

**SIXTH**, PANOGEN is the *only* liquid seed disinfectant widely tested and recommended by agricultural colleges from coast to coast.

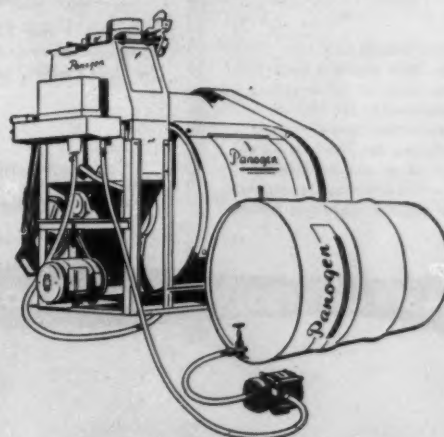
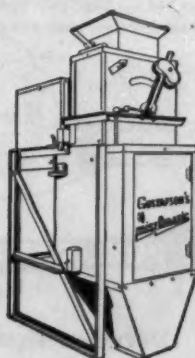
For more facts on the modern PANOGEN PROCESS or the name of your nearest PANOGEN Distributor, write William L. Warren, Southern Sales Supervisor, Panogen, Inc., Box 1014, Memphis, Tennessee.

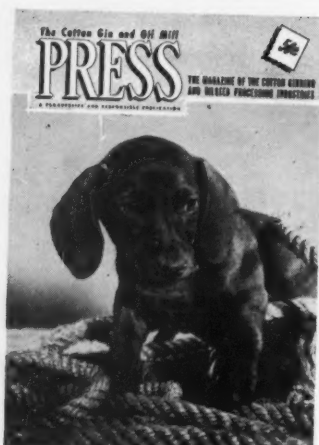
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FROM CALIFORNIA TO  
THE CAROLINAS

★ ★ ★

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Products Association

National Cotton Ginner's  
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**A PROGRESSIVE AND RESPONSIBLE PUBLICATION**

### ★ ON OUR COVER:

We have had a lot of fun with our cover for this issue. In the first place, we don't know what kind of a canine representative our doe-eyed friend is. We conducted our own office contest (no one won), and considered a contest for our readers (nothing to win). We finally just named him Dorcas. From his expression, Dorcas isn't too happy about some situation. Whether it's his unknown heritage, a mouse in that rope, or just plain "puppy love" we don't know. It gives him a definite personality, however. (P.S. Dorcas really is a Dachshund.)

*Photograph by Bob Taylor*

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### THE COTTON GIN AND OIL MILL PRESS

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*Editorial Assistant*

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SOUTHWESTERN**

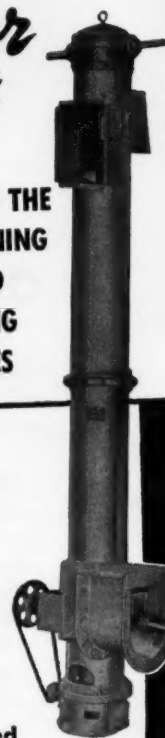
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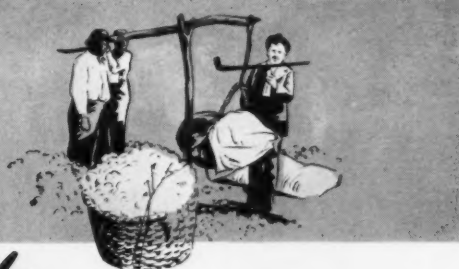
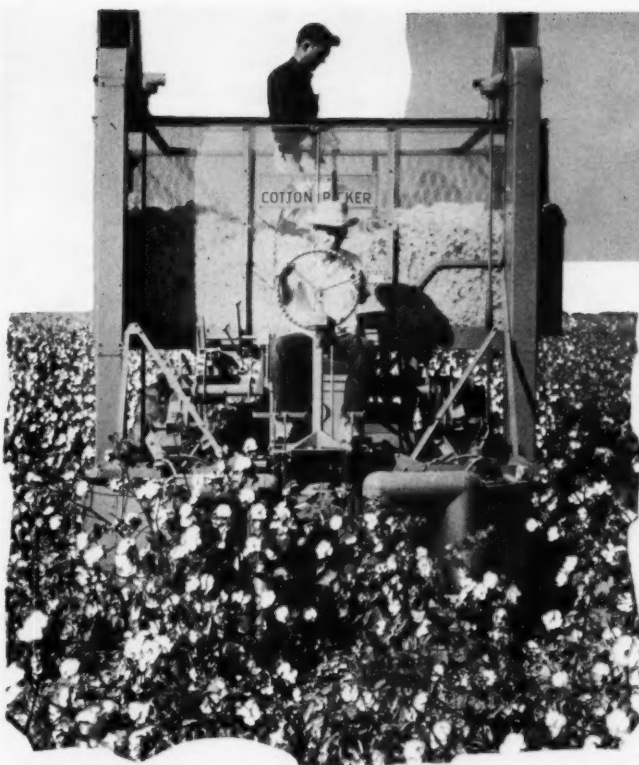
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GIVES TO THE INDUSTRY...***

Developing cottons adapted to mechanization has been the important role played by the Cotton breeding staff at Stoneville through the years. New Plant Characteristics—increased yield and decreased waste recorded by the famed Stoneville Cottons mean lower production costs per acre—higher profits, year after year!

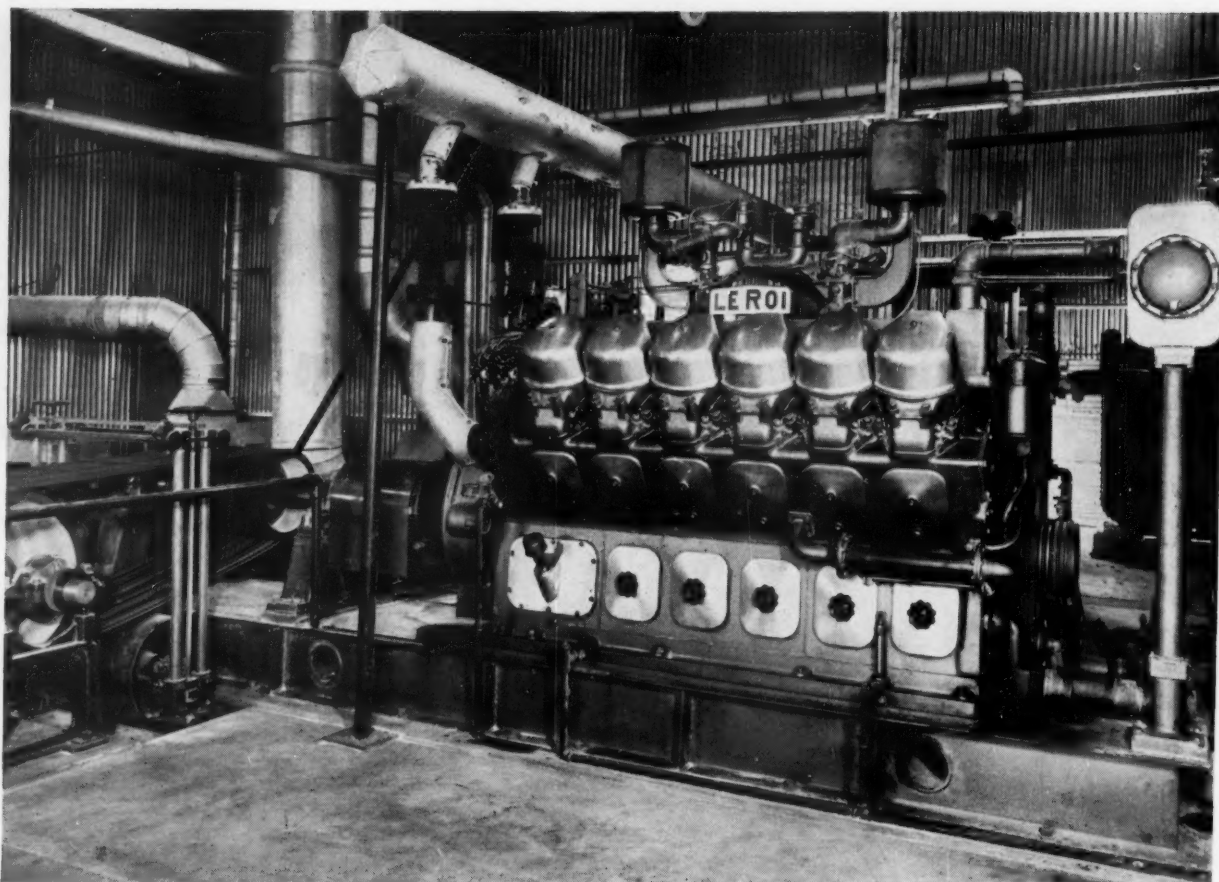


- **DELFO 9169** is noted for its extra staple and extra heavy yield. Highly adapted to Mechanization.
- **STONEVILLE 3202**—This famed early-maturing cotton is winning new acclaim for its increased yield and high gin turnout. Light foliage. Stays in boll.

**Stoneville** Pedigreed **SEED CO., Inc.**  
STONEVILLE, MISSISSIPPI

HOME OF "THE OLD RELIABLE"—STONEVILLE 2-B





*It's a matter of record  
that you can save money  
with Le Roi  
cotton-gin engines*

In our files, we have reports from ginneries in practically every producing state showing that Le Roi engines save money.


We know you're interested in saving money and cutting costs — so here are a few of these reports:

- From Belcher, Louisiana — "Power cost dropped from \$1.20 per bale to 10.73¢ per bale when we installed a Le Roi L3460."
- Gilliam, Louisiana — L3460 fuel cost about 8.5¢ per bale for 6,954-bale season.
- From Fieldton, Texas — "Less than 6 hours downtime in 4 years."
- Altus, Oklahoma — "Our Le Roi L3000 ran for less than 6.5¢ per bale."

There's a good reason why Le Roi engines give outstanding performance. A Le Roi is not a "converted" engine, but one specially designed for cotton-gin and oil-mill service. It has the weight and stamina to take lots of punishment without costly breakdowns. It takes less floor space than other engines of similar hp. rating. Sizes range from 40 to 510 hp., and they all use the same low-cost fuels you use for your dryers and other equipment — natural gas, butane, or propane.

Have your Le Roi distributor show you a Le Roi installation—see why Le Roi's save money. Write for literature.

F-53

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# Mississippi Waging Fight Against Pink Invasion

River crossings guarded once again as Yanks threaten, but it's tourists this time, with cotton souvenirs containing dreaded pink bollworms. Gorillas found among suspects.

FOR SEVERAL YEARS, states to the east of Texas have been becoming more and more alarmed over the northward and eastward spread of the pink bollworm, which is one of the most serious pests of cotton. We here in Mississippi, of course, are among those who are directly concerned since cotton is our most important cash crop. As a result of this we have been operating highway quarantine stations at the river bridges at Greenville, Vicksburg, and Natchez, and have been regularly picking up living pink bollworms from passenger cars and cotton picking crews that cross the bridges at these locations.

The quarantine stations are placed in operation during the latter part of the summer and operated until some time after Christmas in the belief that these are the months during which most of the people who might carry living worms



MISSISSIPPI State Plant Board inspectors are shown stopping a truck at the Natchez crossing of the Mississippi River to inspect it for any cotton that might contain the pink bollworm.

By ROSS E. HUTCHINS  
Entomologist, Mississippi Plant Board

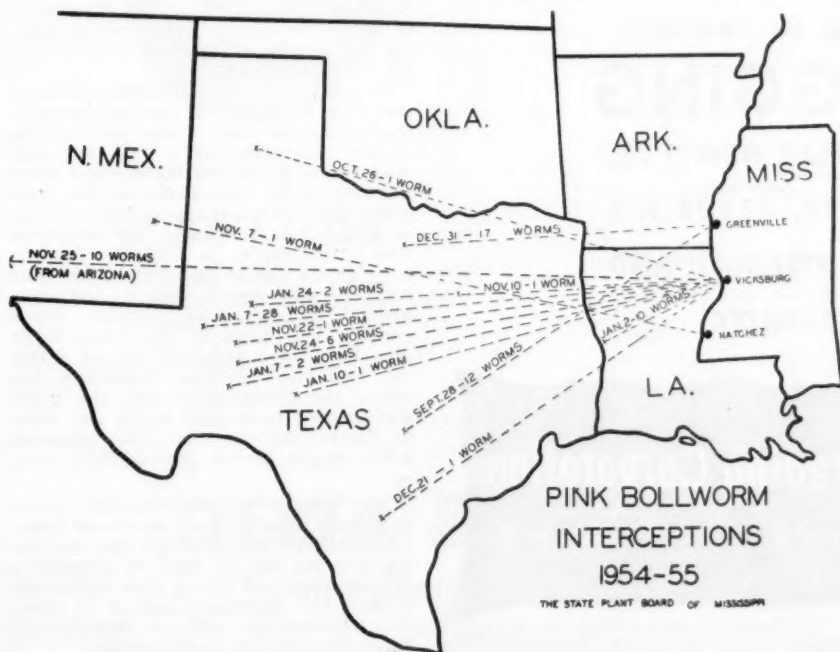
would be traveling. Of course, it might be desirable, if funds permitted, to operate these stations during the entire year, but this would make the cost nearly prohibitive. The stations are operated 24 hours a day and we attempt to stop all traffic, including passenger cars.

• **Tourists Greatest Hazard** — We have found that Northern tourists probably constitute our greatest hazard from the

standpoint of moving pink bollworms into our cotton growing areas. There is something romantic about the growing of cotton and Northern tourists cannot resist the temptation of picking up pretty bolls of cotton to take home as souvenirs. If these cotton bolls were taken on North there would be no harm done, but suppose one of these pretty bolls, which are often infested with living pink bollworms, were to be tossed out along the highway somewhere near a cotton field in the hopes of obtaining a better specimen? Then there would probably be an infestation started at that point. We have actually heard of one or two cases where bolls were discarded along the highway. Also, anyone who has traveled with a large family knows how various kinds of plunder accumulate in a tourist car and eventually the head of the family decides that all this junk has to be thrown out and out it goes along with any souvenir cotton bolls which may have been accumulated along the way.

Cotton picking crews, of course, are serious hazards since they carry picking sacks and have trucks containing waste cotton which is often infested. These crews go to cottonfields immediately after they arrive in the state and thus would take any pink bollworms in their possession to Mississippi cotton.

• **Not an Easy Job** — When the State Plant Board first decided upon the operation of these stations we were under the delusion that all one needed to do to examine traffic was to tie a red rag on a stick and go out along the highway and start stopping cars and trucks. In



ON THE LEFT is a map showing pink bollworm interceptions and points of origin during the 1954-55 inspection.

this, of course, we were very much in error because when one sets out to stop several thousand cars a day with any degree of safety there is more to it than a red rag on a stick, as we found out.

We found that it was necessary to obtain the cooperation of various other state agencies, such as the State Highway Department, the highway engineers, the Highway Patrol, etc. These people, of course, were only too glad to cooperate with us, and without their help the project would have been very, very difficult, if not impossible.

To show the magnitude of the problem of stopping this traffic it may be of interest to quote a few figures. At Greenville, for example our station stops and examines approximately 1,000 cars a day, and about 300 trucks. At Vicksburg we examine 800 to 1,000 cars

and about 200 trucks. At Natchez approximately 4,000 cars cross the bridge a day along with 1,000 trucks. Many of the cars that cross the bridge at Natchez, of course, are commuters coming to work at various industries in Natchez, and in these cases we identify the car by means of a sticker attached to the windshield, wave it on without any examination in most cases.

To emphasize further the tremendous work involved as to the number of cars examined, during the fall of 1954 and thorough January 1955 the inspectors at the three bridges examined a total of nearly three-quarters of a million cars, and about 138,000 trucks. During that time, nearly 100 living pink bollworms were intercepted. Any of these could have been discarded along the highways in Mississippi or perhaps in states to

the East and North of us in the Cotton Belt and started an infestation of the pink bollworm.

One fact which many people do not think of is that it would only take the finding of one pink bollworm in a cotton field to cause the people of the state tremendous economic loss. The reason is that, as soon as only one worm is found in a state, then the federal government, all of the other cotton growing states and foreign countries would immediately place quarantines upon that state. This would interfere with the movement of cottonseed and all other unmanufactured cotton products such as baled cotton, cotton linters, and motes, for example, for they would have to be processed and moved under permit.

We are chiefly interested in keeping this pest out of the state of Mississippi, but we are also actively engaged in determining whether or not it is in Mississippi. In order to do this we operate, in cooperation with the federal government, several gin trash machines which are rather amazing mechanical devices which process gin trash and are able to separate insects, such as pink bollworms, from the gin trash. It is estimated conservatively that one of these machines is easily equal to 100 men in fields cutting bolls in the search for the pink bollworm. The State Plant Board is happy to be able to say that, to date, no living pink bollworms have ever been found in Mississippi.

• **Gorilla Inspection Brief** — The inspectors who police these quarantine stations certainly have a chance to observe the stream of humanity that passes to and fro across these bridges following the great highways toward the East and toward the West. Most any of them can tell you about rather amazing experiences, some of them fit to print and some not. Certainly all sort of people use these bridges; some are well known celebrities, some of them Mexican cotton pickers, some of them drunks who have gone over into wet states from dry Mississippi for a quick pick-me-up, and there have even been alerts at the various bridges for escaped convicts. At both the Greenville and Natchez quarantine stations which are toll free many of the people approach the station holding out money in the belief that it is a toll collecting booth.

Perhaps of all the amusing incidents that have occurred, one that happened at the Greenville station was as amusing as any. One afternoon a large van-type truck drove up to the station and upon questioning by the inspector, the man stated that he was hauling four gorillas in this truck. Naturally, the inspector was suspicious so he told the man to open up the van to see what he did have since he was certain that no one went around hauling four gorillas. Upon opening the doors of the truck large iron bars were revealed beyond which sat four huge gorillas. Naturally this ended the conversation and the truck was allowed to proceed on its way since no contraband cotton or other products which might harbor insects were present.

How long it will be necessary for us to operate these stations, we do not know. There is no doubt but that they are doing a great deal of good in preventing the movement of living pink bollworms toward the Eastward and it is likely that Mississippi will be maintaining these stations for many years.

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**DESERVES**

**Fine Bagging**

**demand...**

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**GUARANTEED NEW 2 LB.**

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- Medium-Early Maturing
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- High Lint Percent (38% to 40%)
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- 1-1/16 to 1-1/8 Inch Staple



## Breeder's Registered **D & PL-FOX**

- Fast Fruiting • Early Maturing
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- 1-1/16 to 1-3/32 Inch Staple

American cotton mills want better quality cotton — staple 1-1/16 to 1-1/8 — of the good spinning quality found in Deltapine 15 and D & PL-Fox Cottons developed by Delta & Pine Land Company. You don't have to sacrifice yield in growing these premium quality cottons. They not only give you the highest gin turnout of any cotton of comparable staple, but have made record breaking yields of more than *four* bales to the acre in field demonstration tests!

Grow the quality cotton in 1956 that brings you premium prices — Deltapine 15 and D & PL-Fox. Insist on Breeder's Registered Seed, with the *purple tag* on every bag — it is your assurance of top quality seed.

We have a moderate amount of Breeder's Registered Seed of a new 1½ inch strain of Deltapine, Deltapine Staple.

*See your seed dealer today, or write, wire or phone*

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*"Breeders of the Belt's Best Cottons"*



FIGURE 1.—Normal cotton leaf is on right. On left are leaves showing varying degrees of malformation induced by 2,4-D.

### Present Status of Knowledge on

## Effects of 2,4-D on Cotton

■ WAYNE J. McILRATH, Department of Botany, University of Chicago, analyzes results of widespread research on sensitivity of cotton to growth-regulating chemical in the following paper.<sup>1</sup>

**S**OON AFTER the commercial introduction of 2,4-dichlorophenoxyacetic acid (2,4-D) as a herbicide, the extreme sensitivity of cotton to this growth-regulator was noted (5,6,7,9,10,26,27,28).<sup>2</sup>

Many early reports were based on accidental contamination of cotton fields by unknown amounts of 2,4-D from weed control operations in nearby fields and pasture lands. The reports stimulated additional research in which the effects of known amounts of 2,4-D on cotton were determined. After less than a decade of such investigation, certain aspects have become quite clear; others will require additional experimental work. The purpose of this report is to summarize briefly the present status of our knowledge concerning this problem.

#### Effects on Plant Growth

Early observations were largely confined to those on growth and malformation, and at present the characteristic symptoms of 2,4-D injury seem well established. Unless cotton is subjected to extreme dosages which "burn" the plant, injury is not immediately apparent because malformations do not manifest themselves until growth has occurred subsequent to 2,4-D application. The malforming effects of 2,4-D are upon meristematic tissues, or those potentially meristematic; and when the tissues are no longer in such a state, they are not susceptible to malformation. All

parts, including leaves, stems, flowers and bolls, developing after 2,4-D treatment, may show injury.

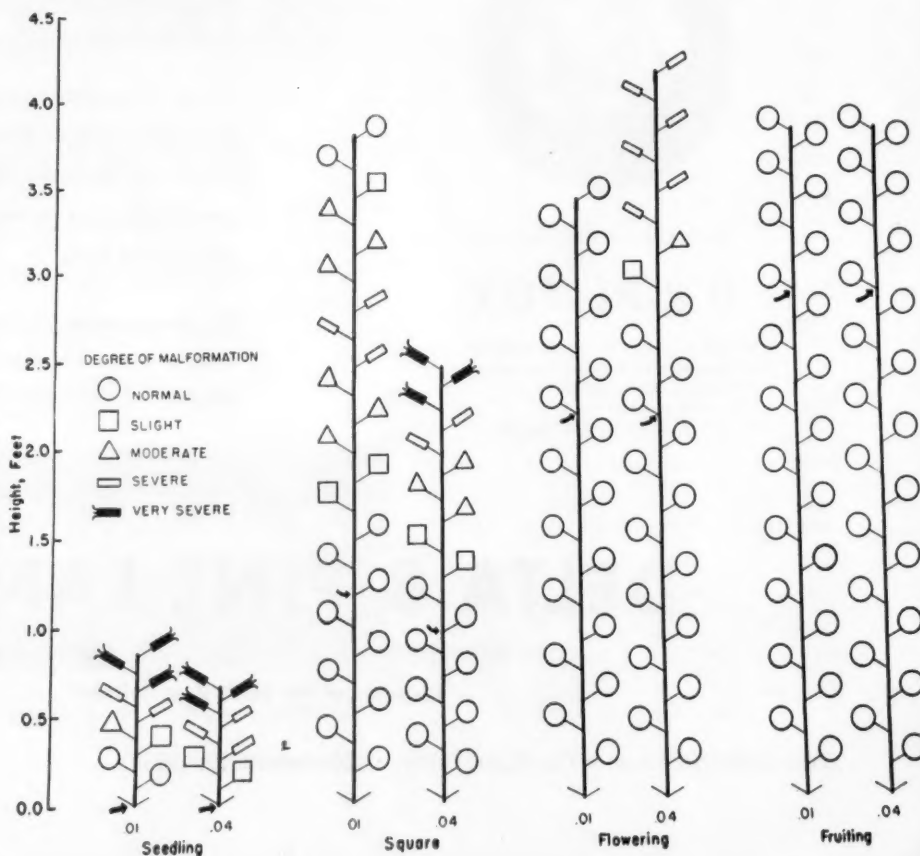
• **Leaf Malformations.** — Perhaps the most obvious malformation and the first

to appear is that exhibited by the leaves (Fig. 1) (4,6,8,10,13,15,16,20,21). Normally the first leaves to expand from the terminal bud following 2,4-D application will exhibit only slight or no malformation. As new leaves are progressively expanded from the bud, the degree of malformation will increase. If new leaves continue to be initiated the degree of malformation will also pass through a regressive series until normal leaves are again formed. In some instances leaves may become very severely malformed and no additional leaves will be initiated (20). Under such circumstances the stem tip will often ultimately die. The number of leaves malformed and the degree of malformation exhibited are dependent upon the dosage of 2,4-D and the stage of plant growth at time of application.

Typical responses of plants to applications of 2,4-D at four stages of development are represented in Figure 2 (20). At the seedling stage, in this case, both quantities of 2,4-D utilized were sufficient to cause very severe malformation of main stem leaves and reduced growth of the main stem. At the square stage, however, only leaves of plants receiving 0.04 milligram developed such a degree of malformation. This quantity of 2,4-D applied at later stages of development resulted in progressively less malformation. In addition to leaves on the main stem, those

(Continued on Page 30)

FIGURE 2. — The diagram below shows leaf malformations on main stem of cotton plants treated with 0.01 or 0.04 milligrams of 2,4-D at seedling stage — plants exhibiting only expanded cotyledons, square stage — when first formed squares were  $\frac{1}{2}$  inch long, flowering — upon opening of first flower and fruiting — when first formed bolls were 18 days old. Arrows indicate terminal visible node at time of growth-regulator application.



<sup>1</sup> Preparation of this report and collection of research data (unpublished) by the author was aided in part by a grant from the Dr. Wallace C. and Clara A. Abbott Memorial Fund of the University of Chicago.

<sup>2</sup> Numbers in parentheses refer to literature citations at the end of the article.

# "WOULDN'T TRADE FOR ANY OTHER KIND OF POWER"

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## Fats and Oils Production Increases in Mexico

Production of fats and oils in Mexico in 1955 is estimated to be only about two percent larger than in 1954. Total output in 1955 is almost 283,900 short tons, oil equivalent, as compared to approximately 277,600 short tons in 1954, USDA has reported.

The increase of about 10 percent that was forecast last April did not materialize, largely because of a decline in the production of coconut oil and a larger decline than expected in tallow production. Copra declined due mainly to disease and to damage caused by hurricanes. Tallow decline was due mainly to drouth, floods and hurricanes. Another contributing factor was the de-

crease in slaughtering in northern packing plants. Flaxseed production also declined, but it is reported that because of higher prices a larger area will be planted this fall for harvest in the spring of 1956.

Exports in 1955 consisted almost entirely of peanuts. The outlook for 1956 is that approximately the same quantity as in 1955 will be available for export.

Imports of fats and oils in 1955 are estimated to include approximately 27,600 tons of tallow, 5,500 tons of lard, and about 6,900 tons of cottonseed for planting. Permits were granted for importing about 330 tons of linseed oil, but because of the prevailing high world prices, it is expected that only about 125 tons will actually be imported.

The Chamber of Oils, Fats and Soap Industries has estimated import re-

quirements for the coming year at about 55,000 tons, excluding lard. Approximately half of the authorizations already requested are for inedible tallow and the remainder for edible tallow and cottonseed oil. Imports of lard for 1956 are estimated at approximately the same level as in 1955—about 5,500 tons.

## Producers Urge Action To Increase Exports

Cotton producers appearing before the Senate Agriculture Committee at hearings in Alexandria, La., on Nov. 9, were unanimous in urging positive action to re-establish and retain a fair share of the world export market for the U.S.

G. C. Cortright, Jr., Rolling Fork, Miss., farmer and a vice-president of the American Cotton Producer Associates, testified for the producer group. Cortright said that action to re-establish and retain for the U.S. a fair share of the world cotton market with adequate protection for domestic mills must be initiated before we can move forward on a sound basis toward developing a long-range cotton program.

Charles R. Sayre, Scott, Miss., chairman, cotton economics committee, spoke for Delta Council. Charles Adams, president, Agricultural Council of Arkansas, Hughes, Ark., J. H. Gilfoil, Lake Providence, La., representing the Louisiana Delta Council; and Ed Jones, executive vice-president, Tennessee Agricultural Council, presented supporting statements. Hilton Bracey, executive vice-president, Missouri Cotton Producers Association, spoke for Missouri cotton growers.

■ HUGO N. DIXON, Memphis; WILLIAM H. BORDEN, New York; SHELBY JOSE LONGORIO, Matamoros, Mexico; and FRANZ P. MOS-TERT, Dusseldorf, Germany, have been elected to membership by the New York Cotton Exchange.

# It Can Be Moved by Air!

The Hubert Phelps Machinery Company of Little Rock, Arkansas, announces another great advancement in the field of pneumatic conveying! Their new, high pressure air unloader has a fan which will create enough pressure on the suction side to convey seed 100 feet at the rate of 30 tons per hour! It will blow efficiently up to 500 feet! The fan develops 2.7 PSI and can be equipped with either a gas (diesel) or electric motor.

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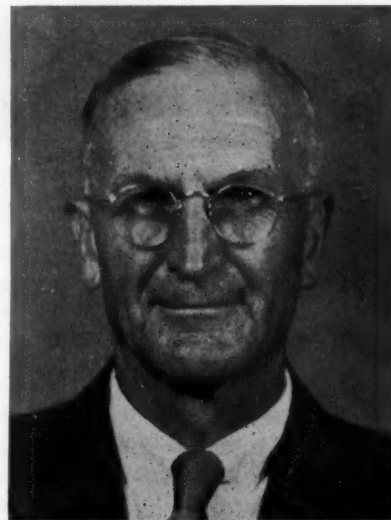
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## Receives Tung Award

DR. GEORGE F. POTTER, Bogalusa, La., has been selected as Man of the Year in Tung and awarded a plaque by the American Tung Oil Association. Since 1938 he has headed the research program of the U.S. laboratories for tung research in the Gulf Coast area.

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# Some Factors Affecting Cotton Fiber Development

In this article the author discusses water conditions, temperature, plant population, insect damage and disease as major factors in fiber development.

By LYLE E. HESSLER

Textile Research Laboratories, Fiber and Spinning Laboratory, Texas Cotton Research Committee, Texas Technological College, Lubbock

THE GROWTH processes whereby the cotton plant develops fiber are well understood; however, many of the causes of variation in fiber development under adverse growing conditions are not too well known. Only under a well balanced nutrition and adequate supply of water will cotton fiber develop to full maturity. In addition, optimum temperature and light intensity are necessary for plant growth hormones and enzymes to initiate the biological reactions which carry out fiber development to the maximum potential of the plant.

The importance of carbohydrate, nitrogenous compound and mineral reserves built up prior to fruiting is well known. However, if through adverse conditions of growth, the reserves are in short supply, the development of fiber is slowed down, often resulting in immature fiber. This well balanced reserve with a good supply of moisture is a prerequisite for good yield and a well developed fiber.

• **The Role of Water in Development** — Water has a tremendous effect on both cotton yield and fiber properties. Plants in general are able to compensate for drouth conditions in a number of ways. A few of these which may be applied to cotton are as follows:

1. Surface area is reduced (loss of leaves).
2. Leaves do not show a decrease in water content.
3. Succulence in general is increased.
4. Hydration of plasma is increased or maintained.
5. Osmotic pressure is increased.
6. Photosynthesis is increased.
7. Respiration is increased or maintained.
8. Stomatal number per unit area is increased.
9. Some enzymes increase, some decrease and others remain the same.

Apparently, under drouth conditions there is an economy of water in the plant and a speeding up of plant functions, such as respiration and photosynthesis, to hasten cotton maturity. Table 1 shows fairly good fiber development under low water conditions in spite of comparatively low yield. The need for hydration of protoplasm is important in cellulose synthesis, since the enzymes for fiber development are found in the lumen of the cotton fiber cell. The chain reaction, which has been set off by stress for water, conditions growth hormones which in turn activates enzy-

me action for speedier fiber development.

The importance of the amount and time of adding water is demonstrated in Table 1. Around 10 inches of rain fell during the growing season in 1954 which would place the plots receiving no irrigation under stress for water, especially since most of the rain came early in the growing season. A low yield of 338 pounds lint cotton per acre and shorter staple are further evidences of water stress. All irrigated plots received a preplanting watering of four inches in April. The quantities and time of watering are shown in the first column of the table.

As far as yield was concerned, the July and August waterings were the most productive and they came closest to the early fruiting period. There are indications that the 16 inch irrigation may have produced rank growth and, consequently, lower yield. Fiber fineness is inversely correlated with yield and the amount of water added. Water applied

in August, while increasing yield, decreased fineness and strength. Increased water late in the growing season is a contributing factor in increasing length. Forcing additional fruiting late in the season, when fiber development is slower, may be considered as a cause for production of finer cotton. Obviously, there is an optimum time for adding water and in the experiment shown in Table 1, July was the month which gave the best yields without too greatly impairing fiber properties. This would be the month of flowering and early boll formation.

• **Temperature Barrier in Cotton Production** — In order for cotton to yield well and produce fiber of acceptable character, environmental conditions must be right. In the U.S. only 13 states produce an appreciable amount of cotton and some of these, along the northern fringe, may have trouble with development of fiber because of temperature

(Continued on Page 24)

Table 1. The Effect of the Amount and Time of Watering on Cotton Fiber Properties.

Time of Watering and Amount	Yield lbs./acre	Fineness Micronaire	Strength 1000 psi	Length UHM Inch	Length Mean Inch	Uniformity Percent
0	338	4.0	81.3	.86	.68	79
4" A <sup>1</sup>	448	4.2	86.8	.88	.68	77
8" A <sup>1</sup> J <sup>1</sup>	502	4.1	78.5	.93	.72	78
8" A <sup>1</sup> J <sup>2</sup>	640	3.8	84.0	.90	.69	77
8" A <sup>1</sup> A <sup>2</sup>	545	3.5	75.2	.88	.70	80
12" A <sup>1</sup> J <sup>1</sup> J <sup>2</sup>	633	3.9	84.6	.95	.75	79
12" A <sup>1</sup> J <sup>1</sup> A <sup>2</sup>	764	3.6	75.4	.94	.73	78
12" A <sup>1</sup> J <sup>2</sup> A <sup>2</sup>	858	3.4	76.1	.93	.72	77
16" A <sup>1</sup> J <sup>1</sup> J <sup>2</sup> A <sup>2</sup>	701	3.6	72.3	.96	.75	78

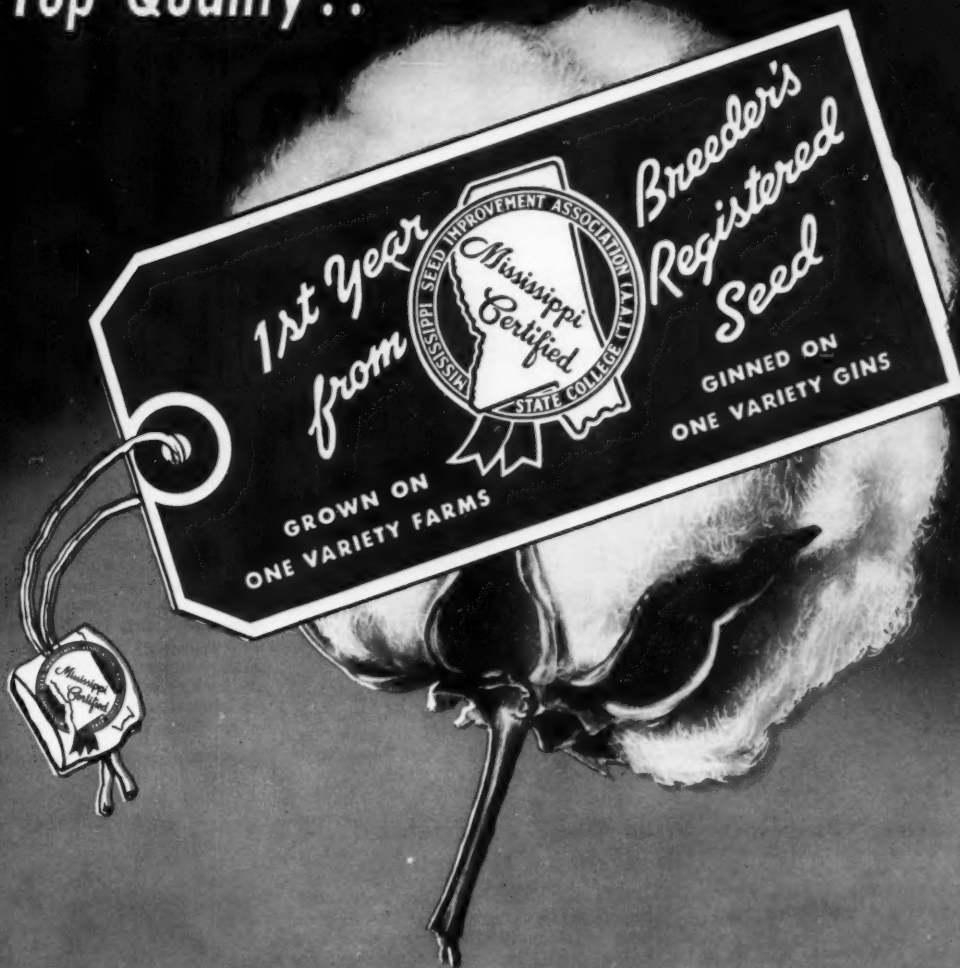
Key to time of watering: A<sup>1</sup>—April, A<sup>2</sup>—August, J<sup>1</sup>—June, J<sup>2</sup>—July.

Table 2. The Effect of Excessive Heat on Cotton Fiber Development.

Variety	Growing Conditions	Length UHM Inches	Fineness Micronaire	Strength 1000 psi
Variety A	Normal	1.15	3.9	93.0
Variety A	Heat	.88	3.0	102.1
Variety B	Normal	1.06	4.0	81.0
Variety B	Heat	.83	3.4	85.0
Variety C	Normal	1.05	3.9	84.0
Variety C	Heat	.79	3.2	84.3
Variety D	Normal	1.07	4.2	81.0
Variety D	Heat	.84	3.7	92.0
Variety E	Normal	1.04	3.9	79.0
Variety E	Heat	.83	3.6	93.0



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# More Ginners Will Benefit From New Short Courses

■ **TEXAS** program calls for holding events in different areas each year so that more representatives from gins can attend and local problems can receive more specific attention.

**A** FIVE-YEAR PLAN for new, improved short courses for owners, operators and employees of cotton gins in different parts of Texas has been developed at a conference of representatives of gin machinery manufacturers, USDA, Texas Extension Service and Texas Cotton Ginners' Association.

The tentative program was outlined at a meeting in the Dallas offices of the Association, which will sponsor the short courses as part of its educational activities.

To enable the maximum number of representatives from gins to attend the short courses, one will be held each year in a different section of Texas. The present plan is for the meetings to be held as follows:

1956—In the Lower Rio Grande Valley. This definitely will be the area for the first short course, which will be held on Feb. 28-29. Details as to the town, program and other matters will be announced later.

1957—In the Lubbock area.

1958—In the Vernon, Texas-Altus, Okla., area.

1959—In the Pecos-El Paso-New Mexico area.

1960—In the Central Texas area, centering around Waco.

Each year's short course will be held for two days.

The first day will have a program of information on ginning presented to the entire group by representatives from USDA ginning laboratories, USDA and Texas Extension Services and other research agencies.

On the second day, the crowd will divide to go to selected gins in the area where representatives of the manufacturers of that particular gin machinery will discuss the use, care, maintenance and general operation of that equipment. Quality ginning will be emphasized.

Manufacturers participating in the plan include Continental Gin Co., Hardwicke-Etter Co., Lummus Cotton Gin Co., John E. Mitchell Co. and the Murray Co. of Texas.

"Anyone, from any area, will be welcome at the short course each year," Ed H. Bush, executive vice-president of Texas Cotton Ginners' Association, emphasized.

"Moving the short courses from one area to another, however, will have many advantages which will increase their value for every gin representative who can attend," Bush added. "Among these advantages are that it will be more convenient for many operators and employees to attend, and that more specific information can be given on the particular problems of the locality."

Bush urged owners of gins to start making their plans to attend these short courses and to bring the maximum number of employees with them.

"The short courses are of particular importance now because of the need for quality ginning and the special effort that Texas ginners are making to produce the quality cotton that mills want," he said.

## Charlotte Norman Joins Cotton Council Staff

Charlotte Norman of Abbeville, La. has joined the New York staff of the National Cotton Council, Ernest Stewart, New York office manager, has announced.

She succeeds Lillian Sledge, resigned, as sales promotion assistant in charge of the Maid of Cotton, children's wear and home furnishings campaigns.

Miss Norman for the past three years has served as Youth Coordinator of D. H. Holmes Co., Ltd., New Orleans department store, where she handled children's wear promotions, staged fashion shows and did special work with school groups.

Miss Sledge, whose home is at Meridian, Miss., announced her resignation from the New York staff in order to return to the South. She has been with the Council since October, 1951.

## Bing Replaces Prichard On Staff of Bureau

William K. Bing, who has been with USDA, is joining the staff of the Bureau of Raw Materials for the American vegetable oils and fats industries. He replaces George L. Prichard who resigned to devote all of his time to his duties as Washington representative of the National Soybean Processors' Association and executive secretary of the National Flaxseed Processors' Association.

## Farm Bureau Honors George Harrison

GEORGE J. HARRISON, California cotton leader, received the California Farm Bureau 1955 award for distinguished service to agriculture on Nov. 9 at the annual convention in San Francisco.

The developer of Acala 4-42 cotton and leader in research on cotton retired recently from USDA and became associated with California Cotton Cooperative Association as an agricultural consultant.

## Strathmore Gin Approved

A permit to build a gin four miles southwest of Strathmore, Calif., has been granted to Kingsburg Cotton Oil Co. by the Tulare County Planning Commission.

## Cotton Ginned to Nov. 1

The Bureau of Census reported the number of bales of cotton ginned from the 1955 crop to Nov. 1, with comparisons, as follows:

	Ginning	(Running bales—linters not included)	
	1955	1954	1953
United States	9,552,939	*9,688,621	*10,768,648
Alabama	944,297	721,515	918,605
Arizona	207,800	362,358	403,125
Arkansas	1,146,768	1,038,808	1,087,233
California	363,562	600,888	516,412
Florida	14,649	15,903	13,604
Georgia	630,048	596,083	699,032
Illinois	797	1,504	1,381
Kentucky	4,315	6,138	5,160
Louisiana	477,286	501,767	599,661
Mississippi	1,566,968	1,325,304	1,739,918
Missouri	298,192	348,826	366,654
New Mexico	110,701	163,566	152,043
North Carolina	264,546	331,843	415,848
Oklahoma	248,428	210,780	251,958
South Carolina	506,977	479,465	649,569
Tennessee	369,132	488,878	518,870
Texas	2,392,218	2,536,955	2,415,707
Virginia	6,255	7,940	13,868

\* Includes 313,958 bales of the crop of 1955 ginned prior to Aug. 1 counted in the supply for the season of 1954-55, compared with 388,229 and 345,860 bales of the crops of 1954 and 1953.

The statistics in this report include 8,855 bales of American-Egyptian for 1955, 11,981 for 1954, and 16,249 for 1953.

The statistics for 1955 are subject to revision when checked against individual returns of the ginners being transmitted by mail.

## Weather Cuts Plains Crop

Cold weather cut the cotton crop about 50,000 bales from previous estimates on the South Plains of Texas during the past two weeks, Lubbock observers report. Most of the freeze damage was in the northern part of the area, including Hale, Parmer, Lamb, Bailey, Castro, Floyd, Briscoe and Swisher Counties.



## Wadzeck Is Honored

MARK WADZECK, manager of the Western Cottonoil Co. mill at Plainview, Texas, was the subject of a feature article in the October issue of The Paymaster, published monthly at Abilene by employees of the firm. Wadzeck entered the industry in 1930 at R. A. Shaver Gin, Rochester, Texas; became manager of Paymaster Gin at Knox City in 1939; and was with the firm at Abilene, and Big Spring, and Munday and Lamesa before becoming manager at Plainview recently.

**from our**  
**Washington**  
**Bureau**  
 by FRED BAILEY  
 WASHINGTON REPRESENTATIVE  
 The COTTON GIN and OIL MILL PRESS

(Editor's Note: Fred Bailey's column for this issue comes direct from Cleveland, Ohio, where the Washington Representative of The Press attended one of the nation's largest farm meetings, that of the National Grange.)

Here in the heartland of American agriculture and industry strange things are going on. There is a glaring paradox of booming prosperity and growing apprehension that it will not last.

Some 20,000 farmers from all parts of the nation are meeting here at the eighty-ninth annual convention of the National Grange, in the midst of the greatest industrial center of the nation.

It is natural that farmers should be concerned over declining farm income and rising costs of production. They are quick to tell you that they are being pushed to the wall. Many of them are staying in farming only because they are using up savings they accumulated during the 1940's and early 1950's.

Industrial and labor leaders who come to rub shoulders with farm folks express real concern over the situation. It isn't so much sympathy as it is self-interest that prompts this unusual concern over declining farm prices and income.

• **Cotton Farmers Worried** — Farmers from Texas, Oklahoma, Tennessee, Arkansas, the Carolinas and other cotton-growing states are worried. To farmers here in the Midwest this seems strange. The cotton crop this year was one of the best—the biggest—in years and the price, supported at 90 percent of parity, has been pretty good.

"I only wish that I had your 'troubles,'" an Ohio corn-hog farmer remarked to a North Carolina cotton grower. "Cotton at \$150 a bale and a bale to the acre looks like money in the bank to me."

• **Midwest Worried, Too** — It is understandable that a Midwestern farmer, being not entirely familiar with the dilemma cotton growers find themselves in, should feel that he is getting a worse deal. Hogs here in Cleveland are selling for under \$13 a hundred, and corn on the farm just a few miles south of here sells for \$1 a bushel.

"Both the corn grower and the man who feeds hogs are losing money," says Byron Frederick, chief of the 180,000-member Ohio State Grange. "And the fellow who grows corn and feeds it to his own hogs is losing money both ways."

Hog prices are the lowest since pre-war. So are corn prices. There is a bumper crop of hogs moving to market, and corn bins all over this part of the country are bulging.

"Everything except our bank balance seems to be bigger than ever before," remarks Dorsey Kirk, a farmer from Oblong, Ill. "Machinery prices have gone up 10 to 15 percent and fencing and building materials cost more."

While there is more than the usual amount of farm grumbling, there seems to be no general agreement on who or what caused the farm price decline of 26 percent in just over three years. Some farmers are quick to blame Secretary

Benson and the Administration in Washington.

Others say the real causes are (1) almost total collapse of our post-war European market, (2) failure to cut back production in line with reduced demand, (3) the huge stockpile over-hanging markets, and (4) high costs of things farmers must buy.

• **Benson Unpopular** — Secretary Benson said in Washington the other day that an overwhelming majority of farmers favor his flexible price program. Anyone attempting to confirm that statement among farmers at the Grange convention would be hard-pressed to find a quartet to sing the praise of Benson.

The overwhelming opinion seems to be that Benson has "let us farmers down"

(Continued on Page 27)

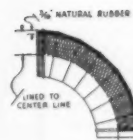


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**MEMPHIS FIRM** is helping high school boys and girls learn business principles through Junior Achievement program.

**V**EGETABLE OIL is being used in a project to teach Memphis high school students business operations in a program sponsored by HumKo Co. The activity is part of the national Junior Achievement program, which is training young people in managing business enterprises and, in most cases, making money for them at the same time.

Japco is the name of the Memphis operation, one of some 28 business projects sponsored by firms of that city. Its development was described by The Memphis Commercial Appeal recently as follows:

The HumKo Co. sponsored the firm—which means the company put up a portion of the money necessary for renting and equipping the Junior Achievement place of business. Then four executives from HumKo volunteered to serve as advisers, and got together with some 25 high school boys and girls.

• **Popcorn Flavoring Oil** — The youngsters decided on a product they wished to make and sell—a popcorn flavoring oil which would have seasonal sales throughout the fall and winter months during which JA will be in operation. That done, they set to work to take legal steps to incorporate and raise operating capital.

To do this, each member of the company undertook to sell stock publicly at

50 cents a share, with each purchaser limited to five shares. Sale of stock realized the \$200 needed to start operating. Louis Le May, 17 was elected president of the Japco Co., manufacturers and marketers of JA-Pop.

The HumKo Co. offered to sell the firm its vegetable-oil flavoring compound at 19½ cents a pint in 400 pint drums. Bottles cost 3½ cents apiece; labels and caps another one cent, and the labor of bottling, capping, labeling and packing, six cents—for a total production cost of 30 cents.

The finished product is sold door-to-door at 49 cents, or in carton lots to grocers for 44 cents. Thus, on every bottle sold, the Japco Co. earns a gross profit of between 14 and 19 cents.

• **Sell Popcorn, Too** — The Junior Achievement firm also came up with a bargain idea to tie in with its JA-Pop sales. They reasoned that flavoring oil for popcorn was of no value without popcorn itself, so they offer a combination—a bottle of oil plus a pound of popcorn for 69 cents. Bill Wright is Japco sales manager whose staff is busily "pushing" the product—and he says enough orders have been taken to keep production lines going several weeks.

Out of profits must come rent at \$3 a month, employees' pay—all JA company members, including executives,

work side by side at manufacturing chores and receive between 10 and 15 cents an hour—and taxes.

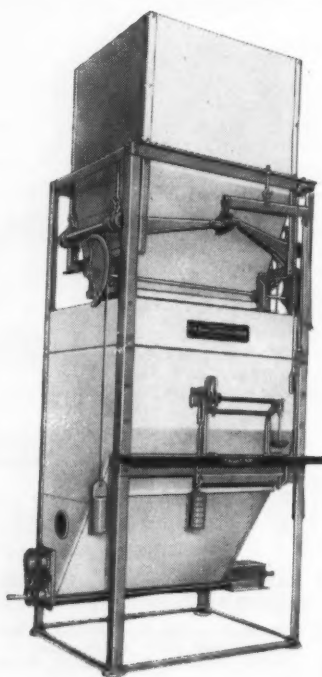
If at the end of the JA year the company makes a profit, it declares dividends on all stock sold and pays off. Otherwise, each member of the firm must personally go back to every stockholder and explain why the company went "bust."

Each company writes up and publishes a complete financial report at the end of the year. National figures show 70 percent of Junior Achievement companies realize a profit and pay up to 10 percent on each share of stock. Twenty percent manage to break exactly even, while 10 percent fail.

## Oil Mills Aid University With Feeding Trials

A group of Tennessee and Arkansas oil mills are cooperating with the animal husbandry department, University of Tennessee, in a series of feeding trials involving cottonseed products.

The mills, which are furnishing the meal and hulls required for the project, are: The Buckeye Cellulose Corp., Memphis; Chickasaw Oil Mill, Memphis; De Soto Oil Co., Memphis; Dyersburg Oil Mill, Dyersburg, Tenn.; Independent Oil Mill, Jackson, Tenn.; Lake County Oil Mill, Tiptonville, Tenn.; Memphis Cotton Oil Mill, Memphis. (Division of Armour & Co.); Osceola Products Co., Osceola, Ark.; Perkins Oil Co., Memphis; The Southern Cotton Oil Co., Memphis; Swift & Company, Oil Mill, Memphis; Trenton Cotton Oil Co., Trenton, Tenn.



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# CEN-TENNIAL COTTON GIN CO.

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MEMPHIS, TENN.

## as viewed from The "PRESS" Box

### • More Futures Trading

COTTONSEED OIL FUTURES trading volume this season is likely to be much greater than in other recent seasons, a New York Produce Exchange release predicts. Open contracts in the Exchange's cottonseed oil futures market recently exceeded 2,000 for the first time since April, 1953. The Exchange attributes the increased activity to the fact that the government has not been buying products at fixed prices over the actual market in order to support cottonseed.

### • Bravest of Brave

BRAVEST MAN on record, without question, is Police Captain Robert Glisson of Memphis. He said men were better drivers than women. Furthermore, he said this at a safety course for women drivers. Even more than that, he's married and said "my wife's what I call the absent-minded type of driver."

### • Surpluses Distributed

SURPLUS FOOD distribution by USDA during the July-September quarter of 1955 was 146 percent larger than in the same 1954 quarter. Donations for domestic use were 10 percent greater, while foreign distribution was nine times greater than in the 1954 period.

### • Trade at Low Ebb

U.S. EXPORTS of agricultural products are at a low ebb, considering world conditions, analysis of USDA figures shows. This country's share of world trade in farm commodities is running at the lowest level since 1883-87, with the exception of the 1934-38 drouth-depression period when this country had little to export and foreign countries little with which to buy. Exports are about 16 percent below the 1920-29 period, when conditions in the world were comparable with those today.

### • Romeo Short Memorial

THE FIRST SCHOLARSHIP has been awarded to a freshman agricultural student at the University of Arkansas by the Romeo Ennis Short Memorial Foundation. The Foundation honors the memory of the late Arkansas agricultural leader who had many friends in the cotton industry.

### • Uncle Is Little Late

UNCLE SAM came to the rescue of Houston Weatherman A. E. Farrell, but not exactly when he wanted help. Early this year, before the summer heat, he requested an air conditioning unit for his offices. The unit arrived in November—on the day that the coldest norther of the year blew into Houston.

### • Neighborly Picking

NEIGHBORS pitched in and helped each other get their 1955 cotton picked in the Zion Community of Mississippi. They started on the hills, where the

cotton opened earliest, and finished up with the rank cotton on bottom land. They agreed to pay each other \$2.50 per 100 pounds and the owner paid off his "hands" when they completed his crop and moved along to another neighbor's. The group averaged picking about 2.5 bales per day, and had fun doing it.

### • Study Copra Problems

PROBLEMS of the copra and coconut oil industry are being studied by subcommittees named at the First International Coconut Conference, held last summer. The working groups will make recommendations on quality grades and standards, research and other subjects at the next conference, which will be held late in 1956 at Colombo, Ceylon.

### • Milk Cocktails Sold

MILK BARS at sporting events, fairs and other gatherings in Britain are being used by the British Milk Marketing Boards in an effort to increase customers. More than 180,000 milk drinks were sold, including the following ingredients in a milk cocktail: Grated

Parmesan cheese, tomato puree, egg, salt, pepper, paprika and milk.

### • Most Feed Pelleted

PELLETED FEEDS now make up 60 to 70 percent of the total output of formula feeds for livestock in the U.S., C. N. Hultberg, Crawfordsville, Ind., executive for a pellet mill firm, estimates.

### • "Gin Smoke" Welcomed

"GIN SMOKE" is a sign of good times at Inverness, Miss., says a recent feature article in The Memphis Commercial Appeal, and the citizens of the community know that the smoky haze from three gins in the fall is a sign of income for farmers and for businessmen. A recent Inverness Lions Club skit entitled "Inverness in October" ended with a thankful note that the gin smoke was there.

### • Cotton's Cousin Pays

COTTON'S COUSIN, okra, made more money for B. C. Cobb of Crittenden County, Arkansas, than cotton did, he reports. He netted \$125 per acre on three acres of the crop, and the crop provided labor and income during the slack summer months. Cobb says, however, that one person can handle only about one acre of okra, because of the labor needed to harvest the pods every other day.

## November 1 Cotton Report

Record yields per acre in many parts of the Belt caused USDA to increase its estimate of the cotton crop during October to a Nov. 1 figure of 14,843,000 bales. This was 915,000 bales more than the Oct. 1 estimate, and compared with 13,696,000 bales last year and the 1944-53 average of 12,952,000. The indicated yield of 431 pounds per acre for the entire Belt sets a new high for the third consecutive year. Yields were 341 pounds in 1954, 324 pounds in 1953 and 279 pounds in the 10-year period, 1944-53.

Compared with a month ago, prospective production is up 250,000 bales in Texas; 160,000 in Arkansas; 150,000 in Mississippi; 70,000 in Alabama; 55,000 in Tennessee; 50,000 in Oklahoma; 35,000 in Arizona and North Carolina; 30,000 in New Mexico; 20,000 in California and South Carolina; 15,000 in Georgia and Louisiana; and 10,000 in Missouri.

Aided by good weather and widespread chemical defoliation, progress during October in harvesting and ginning the late-maturing crop was satisfactory. In the Southeast and in Missouri, Oklahoma and Arkansas, the percent ginned to Nov. 1 was slightly higher than average. For most other states the percent ginned was generally below average. (See ginning figures elsewhere in this issue.)

On Nov. 1, the percent ginned in North Carolina, Arkansas and Missouri was near the three-quarter mark and was at about the 80 percent level in Mississippi and Louisiana. Ginnings, at about 90 percent, are well along in South Carolina, Georgia and Alabama. In Texas and Oklahoma, ginnings are just over the half way mark, while in the three Western States most of the crop remains to be ginned. For the U.S., about 64 percent of the crop was ginned to Nov. 1, compared with 71 percent a year ago and the 10-year average of 66 percent.

The forecast of 14,843,000 bales of 500 pounds gross weight is equivalent to 14,616,000 running bales. The Bureau of the Census reports 9,552,939 running bales were ginned from the crop of 1955 prior to Nov. 1, compared with 9,688,621 bales in 1954 and 10,768,648 bales in 1953. If the ratio of lint to cottonseed for the 1955 crop is the same as the average for the past five years, production would be 6,119,000 tons. This compares with the 1954 crop of 5,702,000 tons.

#### Details by States

State	Acreage for harvest 1955 <sup>1</sup>	Average 1944-53	Lint yield per harvested acre		Production <sup>2</sup> 500-lb. gross wt. bales	
			1954	1955 indicated Nov. 1	Average 1944-53	1955 indicated Nov. 1
	Thous. acres		Pounds		Thousand bales	
N. Carolina	463	334	319	368	492	355
S. Carolina	715	312	288	386	692	575
Georgia	869	253	286	387	695	700
Tennessee	570	360	405	518	565	615
Alabama	993	286	298	505	908	1,045
Mississippi	1,679	341	384	572	1,693	2,000
Missouri	389	368	478	494	358	400
Arkansas	1,453	338	380	532	1,386	1,610
Louisiana	607	321	399	467	591	590
Oklahoma	807	160	151	268	390	298
Texas	6,649	188	245	307	3,388	3,940
N. Mexico	176	500	743	736	217	270
Arizona	340	598	1,039	967	481	685
California	743	631	806	808	1,048	1,250
Other States <sup>3</sup>	61	283	367	380	47	48
United States	16,514	279	341	431	12,952	14,843
Amer.-Egypt. <sup>4</sup>	41.1	357	589	540	29.6	46.2

<sup>1</sup> September 1 estimate. <sup>2</sup> Production ginned and to be ginned. A 500-lb. bale contains about 480 net pounds of lint. <sup>3</sup> Virginia, Florida, Kansas, Kentucky, and Nevada. <sup>4</sup> Included in state and U.S. totals. Grown in Texas, New Mexico, Arizona, and California.

## Many Firms Plan Exhibits At Ginners' Meetings

■ **RESERVATIONS** being made for spring events scheduled by Texas, Midsouth and Southeastern organizations. Machinery and supply group announces entertainment plans for Dallas convention.

**F**IRMS in the gin machinery and supply business throughout the U.S. are making reservations for three major ginners' conventions and exhibits that are scheduled to start early in 1956. These gatherings, which will be attended by ginners from throughout the Cotton Belt, are as follows:

**Feb. 14-15** — Southeastern gin Suppliers' Exhibit at the Biltmore Hotel in Atlanta, sponsored by the Alabama-Florida Cotton Ginners' Association, Carolinas Ginners' Association and Georgia Cotton Ginners' Association. All three of these groups will meet concurrently with the exhibit; and Tom Murray, Atlanta, and Clifford H. Hardy, Bennettsville, S.C., executive officers for the organizations, report that many firms already have reserved exhibit space.

**March 12-14** — Midsouth Gin Supply Exhibit at the Midsouth Fair Grounds in Memphis, to be held concurrently with conventions of the Arkansas-Missouri Cotton Ginners' Association, Tennessee Cotton Ginners' Association and Louisiana-Mississippi Cotton Ginners' Association. W. Kemper Bruton, Blytheville, Ark., reports that supplier firms have shown much interest in exhibits following distribution of floor plans. Bruton, of the Arkansas-Missouri group; W. T. Piggott, Milan, Tenn.; and Gordon W. Marks, Jackson, Miss., are the executive officers for the three sponsoring organizations.

**March 26-28** — Texas Cotton Ginners' Association annual convention at the State Fair of Texas in Dallas. Ed H. Bush, Dallas, is Texas executive vice-president. National Cotton Ginners' Association also will meet here. Many firms already have made exhibit space reservations for this event and a number have requested larger space than they had in the past.

Reservations for the exhibits in Texas are handled by the Gin Machinery and Supply Association (P.O. Box 7985, Dallas, 26), the non-profit organization which provides all of the varied entertainment for the convention. Officers and members of the executive committee of this organization include: president, R. Haughton, of The Cotton Gin and Oil Mill Press; vice-president, Dewey D. Day of The Murray Co. of Texas; secretary, A. G. Falk of the Magnolia Petroleum Co.; and the following, H. R. Carlson, International Harvester Co.; U. H. Ohrman, Dallas Power & Light Co.; and E. J. Pflanz, Briggs-Weaver Machinery Co.

● **Varied Entertainment** — Entertainment plans for the Texas meeting include the following:

Monday night, March 26, there will be an informal dance in the ballroom of the new Statler Hotel for ginners, oil

millers, supply men and their families.

Tuesday afternoon Volk Bros. Co. will present a style show of cotton fashions for women and Jas. K. Wilson Co. will show men's clothing.

Tuesday night an elaborate vaudeville show will be presented in the air-conditioned State Fair Auditorium.

Other special entertainment has been arranged for the ladies, and there will be special entertainment before the opening of each business session of the convention.

### Crushing Industry Changes

Changes and progress in the cottonseed processing industry were discussed by John F. Moloney, secretary-treasurer, National Cottonseed Products Association, before the Rotary Club at Blytheville, Ark., on Nov. 17. W. Kemper Bruton, executive vice-president, Arkansas-Missouri Ginners' Association, served as program chairman for the meeting.

### ● Package Program Is Conference Theme

"A PACKAGE" of production practices, including proper use of fertilizer, insect and disease control, irrigation, defoliation, plant spacing and weed control, will be discussed Dec. 15-16 at the first annual Beltwide Cotton Production Conference, the National Cotton Council points out. Sponsored by the Council and cooperating organizations, the meeting will be held in Memphis with the Peabody Hotel as headquarters.

Immediately preceding the conference, and held in conjunction with it, will be separate technical meetings of groups particularly concerned with defoliation, disease control, and insect control.

The technical aspects of these practices as well as methods of fitting them together for a more efficient production program will be the principal challenge to the agricultural experts attending the two-day conference.

### ● Article Cites Bonus In Protein Feeding

THE BONUS in feeding protein is discussed by A. L. Ward, Dallas, director, National Cottonseed Products Association Educational Service, in an article in the "Shorthorn World" which has been distributed to cotton oil mills.

The article calls attention to the added soil fertility value which the livestock feeder gets from use of the manure from animals fed rations containing adequate protein.



Photo: Courtesy Texas Cottonseed Crushers Assn.

**TARPAULINS PAY** The use of tarpaulins to cover loads of seed cotton on the way to the gin often pays for itself in a single season. This sound practice not only helps to protect the grade from weather damage, but also eliminates waste as the cotton is hauled and helps insect control by preventing cotton containing pink bollworms or other pests from being scattered along the road.



## 1955 USDA Yearbook Features Water

"Water" is the central theme of the 1955 Yearbook of Agriculture, USDA has announced. The 752-page volume is devoted to drouth, floods, and the normal sources and uses of water. Articles have been contributed by 149 specialists in USDA, state agricultural institutions and other work.

Copies may be obtained free through members of Congress or direct from the Superintendent of Documents, Washington 25, for \$2 each.

## • Five States Get More Acreage

FIVE STATES (Arizona, California, Illinois, Florida and Maryland) will have slightly more cotton acreage in 1956 than in 1955 under the state allotments announced by USDA. Nevada's allotment is unchanged. Texas, Mississippi and Arkansas have the largest reductions in comparison with last year's allotments.

State allotments and comparisons follow:

State	1955 allotment	Acreage in cultivation	1956 allotment
	(acres)	July 1, 1955*	(acres)
Alabama	1,101,804	1,005,000	1,025,141
Arizona	353,933	336,000	343,640
Arkansas	1,529,704	1,475,000	1,424,511
California	778,686	757,700	782,405
Florida	36,283	32,700	36,974
Georgia	950,818	885,000	908,221
Illinois	3,056	2,700	3,110
Kansas	35	—	29
Kentucky	8,374	8,000	7,799
Louisiana	648,442	620,000	610,891
Maryland	—	—	25
Mississippi	1,750,852	1,730,000	1,646,562
Missouri	399,627	395,000	378,055
Nevada	2,324	2,200	2,324
N. Mexico	182,194	176,700	179,378
N. Carolina	515,714	475,000	483,932
Oklahoma	872,532	845,000	845,616
S. Carolina	773,945	725,000	726,193
Tennessee	593,868	580,000	563,491
Texas	7,612,779	6,984,000	7,410,893
Virginia	18,238	17,500	17,114
U.S.—Total	18,113,208	17,052,400	17,391,304

\* These figures do not include American-Egyptian cotton acreages.

## DeLois Faulkner Will Go To South American Fair

Maid of Cotton DeLois Faulkner will participate in a diplomatic mission to South America next month. The National Cotton Council reports that she will make good will appearances and model cotton costumes at the International Industries Fair in Bogota, Colombia, Dec. 2-12.

On the theory that a pretty girl can do a diplomat's job of winning friends for the U.S., Miss Faulkner was invited by USDA to add her own touch of glamor to the first international trade fair in Latin America in which the Department will participate.

Miss Faulkner will be the first Maid of Cotton to visit Latin America since 1953 and the first ever to appear in Bogota. She will be honored at several receptions and will appear at the fair on U.S. Day, Dec. 10, along with Secretary of Commerce Weeks and other U.S. dignitaries.

## Cottonseed Meal Advocated For Wintering Cattle

There is no need to try and fatten commercial breeding cattle during the winter, but feeders should use the proper amount of protein, says Mississippi Extension Service.

A 1,000-pound bred cow, or two-year-old heifer will need a ton of average hay and 100 pounds of cottonseed meal for a 100-day feeding period. Or, a ton and one-half of sorghum silage, 600 pounds of hay and the 100 pounds of cottonseed meal.

Cows with fall calves should be given two or two and one-half tons of the silage, the small hay allowance and the protein supplement doubled.

Replacement yearlings, steers and heifers will require a ton and one-half of silage, 600 pounds of hay and 100 to 150 pounds of cottonseed meal.

Herd bulls require special attention. A 1,400-pound bull, wintered without pasture, can be kept in good breeding condition with a daily allowance of 30 pounds of silage, 10 pounds of good quality legume hay, 10 to 12 pounds of grain mixture and one to two pounds of protein meal.

As wintering cattle varies on individual farms, according to the size of the farm, the numbers of cattle, the production system followed and the feed available, farmers should consult their local county agents for specific recommendations.

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ANGLE TYPE CONVEYOR TROUGH

**BALL BEARING HANGERS**  
assure frictionless operation reducing power requirement.

**PATENTED TITE-SEAL SPRING COVER CLAMPS**  
hold cover in place and eliminate all bolts and nuts.

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enable easy assembly.

**CURVED OR FLAT SLIDE GATES**  
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## Fiber Development

(Continued from Page 16)

limitations. All plants have an optimum temperature for growth and reproduction. For the cotton plant, this temperature must be warm days and fairly warm nights. If the night are cold, the time required for the plant to start its metabolic function during the warmer daytime may run into hours and thus slow down fiber development.

The optimum limits of temperature seem to be 70 to 100 degrees Fahrenheit. The upper limits of temperature may vary, depending on the water available for evaporation from the soil which has a cooling effect on the plant and alleviates excessive wilting. Day temperatures over 100° Fahrenheit for any length of time will result in undeveloped cotton. Excessive heat produces considerably shorter, finer and stronger cotton. A few examples are shown in Table 2.

The cotton in Table 2 shows the effect of heat and stress for moisture. During the period of boll development this cotton grew under temperatures in excess of 100° Fahrenheit for over 30 days without sufficient moisture to help counteract the high temperatures. The greater measure of underdevelopment is shown in the shorter staple. Fineness is down and stress for water has increased strength of fiber in most cases. Such high temperatures and stress for moisture indicate that the plant is unable to maintain its water balance when most needed. Sufficient water during fiber development is most essential because the process of fiber synthesis requires a hydrated protoplasm to initiate the metabolic reaction for hormones and enzymes in cellulose synthesis. The streaming of the protoplasm in the fiber cell depends on the temperature and degree of hydration. The rate of fiber development depends on rather delicate water balance in the cell. That the plant makes a special effort to overcome drought has been demonstrated by an increased hydration of cell plasma when the plant is under stress for moisture. When this stress for water is increased by high temperatures which result in increased transpiration, the water balance is disturbed and fiber development slowed down.

• **Plant Population Studies** — The fiber properties of cotton can be greatly altered by the number of plants per unit area as shown in Table 3. The spacings were the conventional 40 inch rows, 20 inch rows thinned to 6 inches, 20 inch rows with no thinning and drilled cotton. This experiment shows that development is slowed down by the demand for water

and nutrients in the more heavily spaced plots. Fineness shows the greatest effect of spacing, whereas length and strength are only affected by the drilled cotton, which would be considered very close spacing. The adverse effect of close spacing may be counteracted by fertilization and increased watering. Three bales of cotton to the acre were produced from drilled cotton by this practice.

• **Plant Mutilation, Insect Damage, Disease and Fiber Development** — The question is often asked as to how fiber properties are affected by plant disease and insects. Since these destructive forces on the plant reduce surface area or leaf area of the plant, they are expected to slow down photosynthesis, respiration and plant metabolism and, thus reduce the synthesis of carbohydrates and nitrogenous substances essential to the reserves that go into fiber development. Fiber from plants which had been mutilated at various dates by stripping the leaves gave some information on leaf destruction, which was perhaps more severe than disease and insect damage. Table 4 shows how leaf stripping over the boll period affects fiber properties. The most severe damage to fiber properties comes during the period of most active fiber development. Leaf mutilation gave finer, weaker, and shorter cotton. Consequently, damage from disease and insects varies with the time and amount of destruction.

The insects which damage the boll, especially in the early stages, are the ones most likely to affect fiber properties; in the case of the pink bollworm, such damage will show up in the yield as well as in fiber properties. Actual tests on blight infected plants with a high degree of infection showed the fiber properties to be only slightly affected. As stated before, the time of infection and the amount of damage determine how the fiber properties are affected.

• **Defoliation and Fiber Properties** — When used at the proper time in fiber development, defoliation can play an important part in producing trash-free, high-grade cotton. Cotton will be finer by using defoliants, if a sufficient quantity of underdeveloped cotton is in the sample, that is, if a large amount of cotton is unopened and in the process of development. Dessicants which rapidly kill the plants are more likely to show the results of underdeveloped fiber than the defoliants which abscise the leaves without killing the plants. Table 4, which shows the effect of leaf stripping without killing the plant, gives some information on defoliation and fiber development. In general, if 80 percent of

the bolls are open, defoliation of any kind will have little effect on fiber properties.

• **Uniformity and Utility of Cotton Fiber** — Besides variation in fiber development produced by environmental conditions and production methods, there are variations in fiber properties which are considered normal to the plant. If the top bolls are separated from the bottom bolls and fiber properties are determined, the micronaire fineness for the bottom bolls is greater by one-half to nearly one micronaire unit. Length can be as much as one-thirty-second inch in favor of the bottom bolls. Strength may vary but it is generally not as clearly differentiated in favor of one section of the plant or the other. This variation may be attributed to the fact that the bottom bolls were the first to be set and consequently, developed over a longer period than the new growth produced by the upper half of the plant. Naturally, this variation over the plant will be affected by variety, earliness, temperature of growth, and amount of watering. Therefore, many gradations of fineness may be found in a bale of cotton. An average value for fiber fineness may indicate an acceptable bale of cotton, when in reality the fineness range is so great that processing for yarn is difficult, neps are high and yarn strength is down. Since the cost of detecting such a bale of cotton is high and the bale may be detected only after processing, every effort should be made to avoid producing cotton of such poor uniformity.

Perhaps the greatest offenders in producing cotton of a wide range of development are heavy rain late in the growing period and prolonged irrigation. Both of these conditions bring on new growth which lacks secondary wall development. Early cold in the boll development stage and early frost which stops fiber development are other contributing factors in producing fine cotton.

An effort has been made to stress some of the growth conditions which affect cotton fiber development. Some of the production practices can be remedied; others, such as growth conditions brought about by adverse environmental factors, have practically no solution. Therefore, every effort should be made to develop methods of production which will produce cotton of the best possible character.

### Acknowledgement

Appreciation is expressed to Don Jones, superintendent, Levon Ray, agronomist, and Dr. Harry Lane, plant physiologist, Lubbock Experiment Station, for cotton samples in this cooperative research.

## Study of Mechanization

"Tenure and Mechanization of Cotton Harvest, Texas High Plains," is the title of a new Bulletin 813, issued by Texas Experiment Station, College Station.

William G. Adkins and William H. Metzler are the authors of the publication, based on a survey conducted jointly with USDA.

## Fire Damages Seed House

Fire in the seed house of Schrade Gin Co., in Dallas County, Texas, did damage estimated at \$10,000 on Nov. 12.

Table 3. The Effect of Plant Population on Fiber Properties.

Spacing	Fineness Micronaire	Strength 1000 psi	Length UHM Inches	Length Mean Inches	Uniformity Percent
40 inch rows	4.3	79.5	.92	.73	79
20 inch rows Thinned to 6"	4.0	78.6	.93	.76	82
20 inch rows No Thinning	3.6	81.5	.93	.70	75
Drilled	3.2	70.3	.88	.70	80

Table 4. The Effect of Cotton Plant Mutilation on Fiber Properties.

Leaves Stripped Date	Fineness Micronaire	Strength 1000 psi	Length UHM Inches	Length Mean Inches	Uniformity Percent
7-26	4.9	79.4	0.99	.84	85
8-2	4.3	78.9	1.01	.85	84
8-9	4.6	78.1	0.98	.82	84
8-16	3.5	79.0	0.96	.79	82
8-31	2.9	74.0	0.98	.78	81
9-31	3.5	76.4	0.97	.80	83

## 1956 Cotton Week Theme Announced

National Cotton Week for 1956, which will be held next May 14-19, will open its second quarter-century as the annual merchandising event of the American cotton industry. Posters and merchandising literature will stress the new slogan, "Pick Your Cottons Now — First Choice for You and Your Home—Naturally Fresher, Cooler, Smarter," the National Cotton Council has announced. Official Cotton Week display materials will be completely revised for 1956.

The first National Cotton Week, sponsored by the former Cotton Textile Institute, was held June 1-6, 1931. For the past 15 years, the event has been sponsored by the National Cotton Council.

## Textile Spokesmen Ask For Quotas on Imports

Import quotas were advocated to protect U.S. from cotton goods imports in testimony Nov. 9 before the Committee on Reciprocity Information by R. H. Jewell of Chickamauga, Ga. He is chairman of the American Cotton Manufacturers' Institute foreign trade committee.

Since 1950, 227,000 textile employees have lost their jobs, a decline of 17 percent, even though U.S. manufacturing as a whole has been booming and total industrial employment has gone up 11 percent, Jewell testified.

He said that textile profits are subnormal compared with all industry, while wholesale prices of textiles and apparel have dropped below pre-Korean levels in contrast with the general upward price trend.

In addition to these facts on depression conditions handicapping the industry, while wholesale prices of textiles and apparel have dropped below pre-Korean levels in contrast with the general upward price trend.

In addition to these facts on depression conditions handicapping the industry, Jewell called attention to the "fantastic" increases in imports of fabric and clothing now taking place, mostly from low-wage Japan.

The current inrush of goods, with no end in sight unless some kind of ceiling is set on imports, is being accelerated, he said, by the "drastically reduced" tariff rates on cotton cloth which went into effect Sept. 10.

To reduce tariffs on cotton yarns would be stabbing at a basic segment of the textile industry, said E. N. Brower, president of Rockfish-Mebane Yarn Mills, Hope Mills, N.C. R. D. Hall of the Stowe Thread Co., Belmont, N.C., said national security would be jeopardized if control of yarn manufacture were to fall under foreign domination.

## Conference Dates Chosen

The 1956 Georgia Feed and Poultry Conference will be held June 4-5 at the Dinkler Plaza Hotel, Atlanta, according to Will L. Kinard, secretary and treasurer of the Georgia Feed Association.

## • Poisoning Increased Yields of Cotton

INSECT CONTROL made a big difference in cotton yields in South Carolina this season, the Extension Service reports, as it did in many other states. Typical comments from County Agents in South Carolina were:

Lee County: "Fields properly poisoned gave good cotton yields, but unpoisoned fields suffered damage as high as 75 percent from the weevil."

Dorchester County: "Farmers who got good yields of cotton were, with a few exceptions, those who followed a good poisoning program."

Sumter County: "This year again proves poison properly applied will save a cotton crop from the boll weevil. But

it can't be put on just any old way, and it must be followed through as long as there's a threat, or the weevil can eat up the crop at the last."

## David L. Herndon, Murray Co. Plant Manager, Dies

David L. Herndon, plant manager for The Murray Co. of Texas at Atlanta, Ga., died on Nov. 8 at the age of 59. He joined the Murray organization in 1913 and worked his way up from shipping clerk to general plant manager in Atlanta.

Herndon had a broad knowledge of the manufacture of cotton gin machinery and was well known throughout the Southeast among gin and oil mill operators.

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**FOR SALE**—2 French screw presses, complete with motor starters, 5-high ring stack cookers, individual steam traps, pressure gauges, etc. Only about 50,000 bu. soy beans have been processed through each since new. May easily be converted to cottonseed crushing. \$17,000 for both units. Present replacement cost about \$52,000.—Fayette Soybean Mill, Fayette, Iowa.

**OIL MILL EQUIPMENT FOR SALE**—Rebuilt twin motor Anderson high speed expellers, French screw presses, stack cookers, meal coolers, fourteen inch conditioners, filter presses, oil screening tanks, complete modern prepressing or single press expeller mills.—Pitcock & Associates, Glen Riddle, Pa.

**FOR SALE**—Filter presses; screening tanks; single and twin motor Anderson Super Duo expellers, with conditioners; several extra 36" cooker dryers and conditioners. All steel linter baling presses; 141-176 saw linters; seed cleaners; No. 153 separating units; bar hullers; lint beaters; stack cookers; rolls; hydraulic press room equipment.—V. A. Lessor & Co., P. O. Box 108, Fort Worth, Texas.

**FOR SALE**—Anderson Super Duo expellers, each complete with 14" conditioner and 36" cooker; 5 high 60" ball bearing rolls. 176 and 141-saw Carver linters. 72" and 85" cookers. Butters milling machine. Double box linter press. Filter press. Attrition mills. Single drum hull beater. 42" Carver hullers.—Sproles & Cook Machinery Co., 181 Leslie St., Telephone PR-5958, Dallas, Texas.

**FOR SALE**—Complete oil mill consisting of 10 Davidson-Kennedy hydraulic presses, 18 Carver linters. 2 hullers, 450 h.p., 4-cylinder automatic gas fired Bruce-McBeth power plant, 36,000 sq. ft. buildings, 900 ft. siding. Priced to sell.—J. E. Higgins & Company, 3109 Peachtree Dr. NE., Cherokee 6071, Atlanta, Georgia.

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150	Slipring	900	1566
200	Sq. Cage	900	1481
150	Sq. Cage	900	1188
100	Slipring	1200	1076
100	Slipring	900	1189
100	Sq. Cage	1200	758
100	Sq. Cage	900	879
75	Sq. Cage	1800	490
75	Slipring	1200	889
75	Slipring	900	991
75	Sq. Cage	1200	564
60	Sq. Cage	1800	356
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## Gin Equipment for Sale

**FOR SALE**—All steel Lummus press with tramper and hydraulic piping and fittings. Used 3 seasons. A bargain at \$4600.—Box RB, c/o The Cotton Gin and Oil Mill Press, P. O. Box 7985, Dallas, Texas.

**FOR SALE**—Cotton gins, oil mills, compresses and grain elevators. Contact M. M. Phillips, Phone TE5 8555, P. O. Box 1288, Corpus Christi, Texas.

**FOR SALE**—4-1949 Model, 80 saw F-3 Continental brush gins with stainless steel fronts, in new condition with seed hoppers and short flues. 5-80 saw Murray stands with glass fronts and complete lint flue system completely reconditioned. One ram and casing in good condition. One all steel gin building 30' x 108' with double suction shed. 5-60" plain hoppers.—Kimbell Gin, Earth, Texas.

**GINNERS**—When in need of machinery or power or when you have machinery for sale or trade, call us first. We have many items of new and reconditioned equipment in stock, ready for prompt shipment.—R. B. Strickland & Co., 13-A Hackberry St., Telephones: Day 2-8141, Night 3-7929, Waco, Texas.

**FOR SALE**—Conveyor distributors. One 5-80 Mitchell, one 5-80 Hardwicke-Etter, one 5-70 Lummus. Gins: 4-80 Continental Model C brush, 4-80 Cen-Tennial air blast with loose roll boxes and glass fronts. 5-70 Continental Model C brush with 30 fronts. Driers: Two Murray big reel, two Lummus thermo cleaners, one 5-80 Mitchell. Bur machines: One Lummus 10' all-steel with 5-cylinder after cleaners, one Hardwicke-Etter 14' wood. Cleaners: Two Murray 52" V-belt inclined blow-in type, two Continental inclined 4-cylinder all-steel, one 6-cylinder Continental all-steel air line. Lint cleaners: 5-80 Murrays complete. Condensers: Two Continental all-steel side discharge, one Lummus 60" up discharge. Engines: One MM Twin six 210 h.p., one MM 240 h.p. 6-cylinder. Electric motors: Sizes from 20 to 150 h.p. 440 volt.—Bill Smith, Box 694, Phones 49626 and 47847, Abilene, Texas.

**FOR SALE**—Complete Continental 4-70 or 5-70 saw air blast 1929 model gin, electric driven. 12' bur machine with cleaners, all-steel, late model. 1955 model dryer. Will sell cheap, with or without building.—G. A. Wolman, Caldwell, Texas.

## Equipment Wanted

**WANTED**—Facilities or location or installation with or without caustic refining equipment for the refining of cottonseed oil, but must have water facilities for loading barges and tankers including necessary land tank storage. If such facilities are available in the Texas Gulf area, please write to Box NK, c/o The Cotton Gin and Oil Mill Press, P. O. Box 7985, Dallas, Texas.

**WANTED**—4-90 saw late model gins. Four feeders, and lint cleaners (Moss-Gordin or Continental).—Box ET, c/o The Cotton Gin and Oil Mill Press, P. O. Box 7985, Dallas, Texas.

**WANTED**—Want to buy, sell or trade for good all-steel used gin machinery, and engines.—Bill Smith, P. O. Box 694, Phones 49626 and 47847, Abilene, Texas.

**WANTED**—Overseas cotton ginner are interested in buying complete delinting equipment to delint 50 tons of cotton seed in three shifts of 8 hours daily. Also interested in cotton seed oil mill to press to crude oil. All machines must be in perfect working order and of recent make, so that spare parts may be obtainable from manufacturers.—Box DP, c/o The Cotton Gin and Oil Mill Press, P. O. Box 7985, Dallas, Texas.

**WANTED**—One down packing and one up packing press, all-steel. 5-80 Continental brush gins. One all-steel hull extractor.—W. A. Herrmann, 1540 Prince Street, Houston 8, Texas.

**WANTED**—Continental impact cleaner 72" or Murray 72" 9-drum incline.—Santa Maria Gin Company, Santa Maria, Texas.

## Personnel Ads

**POSITION WANTED**—Day or night superintendent. Several years experience in oil mills, fertilizer plants, and gins. Screwpresses and expellers. A-1 references furnished.—Box RJ, c/o The Cotton Gin and Oil Mill Press, P. O. Box 7985, Dallas, Texas.

## Power Units and Miscellaneous

**FOR SALE**—New and rebuilt Minneapolis-Moline engines, from 35 h.p. to 220 h.p., call us day or night for parts and service.—Fort Worth Machinery Co., 913 E. Berry St., Fort Worth, Texas.

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## Presenting

**J. D. Fleming**

**Oklahoma City, Okla.**



**J. D. FLEMING**, secretary-treasurer of Oklahoma Cottonseed Crushers' Association and Oklahoma Cotton Ginners' Association, is a native of Custer County and attended high school at Custer City. In 1937 he received his B.S. degree from Oklahoma A. & M. College, majoring in soils and agronomy.

Fleming was with the Agricultural Adjustment Administration from 1937 to 1940, and assistant county agent in Muskogee County until 1942. He was with the U.S. Army Corps of Engineers, 1942-1946, at Fort Richardson, Alaska; and worked with a private engineering firm on postwar construction there from 1946 to 1949.

He served as cotton specialist with Oklahoma Extension Service from 1949 to 1951, stressing more complete mechanization, use of varieties suitable for machine harvesting and the use of commercial fertilizer. Fleming also inaugurated the 4-H Club Cotton Improvement Program which now is sponsored by Oklahoma Cotton Research Foundation.

Since 1951 Fleming has been secretary-treasurer of that Foundation and of the state's ginners' and crushers' Associations. He works closely with all agricultural educational agencies of the state.

He and his wife, the former Ruth Honick of Logansport, Ind., have four children: Jeff, Diana, Jerry and Karen.

## Flax Institute Meets

Agricultural and industry leaders were on the program of the meeting of the Flax Institute of the U.S. in Minneapolis on Nov. 17-18.

## James Joyce, Retired Texas Ginner, Died on Nov. 8

James Robert Joyce, retired ginner, died Nov. 8 at Snyder, Texas. He had owned and operated several gins in the area for many years. Funeral services were held Nov. 10 at the First Baptist Church in Snyder.

Survivors include his wife; four sons, Sam, Fla, Amos and I. A. Joyce, all of Snyder; one daughter, Mrs. B. R. Templeton of Houston; one brother, Frank Joyce of Mount Vernon; four grandchildren and one great-grandchild.

## Cover Crop Increases Yield

Turning under vetch increased cotton yields from the 1955 crop one-fourth of a bale per acre for T. L. Masterson, Craighead County, Arkansas. Cotton on land that had the cover crop made over one bale per acre, without irrigation, Masterson reported. Yields on similar land that did not have a vetch crop earlier were 350 to 400 pounds per acre.

## From our Washington Bureau

(Continued from Page 19)

through failure to take more positive action to halt the price decline. The Grange, a traditionally middle-of-the-road organization politically, has before it more than 30 resolutions critical of Benson farm program administration.

The paradox that most farmers here seem unable to comprehend is the contrast of falling farm income against unprecedented industrial prosperity. That, more than almost anything else, is what sticks in their craw. That disparity is hard to comprehend.

That is the question that farmers here ask their labor and industrial visitors. Labor representatives concede that wages have gone up nearly one-third since end of the war, but they say living costs are up and labor is entitled to a fair share of the big profits of busy factories.

They point to record-high stock prices and big dividends to prove that industry can afford to pay good wages. Farmers, they contend, are better off when good wages make good customers for farmers.

Industry leaders tell a different story. They say farm machinery, truck, automobile and other prices are higher because wages have gone up. They blame labor for most of farmers' high-cost troubles.

Whatever the cause, and whoever is responsible, the fact is the farm cost-price squeeze has forced more than 100,000 farmers to go out of business in the past two years. With the exception of feed and seeds—both of which are farm-grown products—virtually all farm operating costs are now at a record high.

Farmers here ask: Who has benefitted by the lower cost of farm products? Food costs at retail have gone down very little, if any, in the past three years. Some items, such as pork, are lower, but generally the lower prices have not been passed on to consumers.

A few years ago farmers received 53 cents out of every dollar the housewife spent for food. This year farmers will get only 42 cents, the remaining 58 percent going to cover distribution. Next year, the USDA forecasts, farmers' share will be even lower.

Labor spokesmen complain about continued high food costs. Industry people,

again, blame higher labor costs for most of the increase. Transportation costs are up, so are taxes and other "hidden" costs, they say.

• **Another Crash Feared** — But there is one thing that all three—farmers, laborers and industry management spokesmen—agree on. The farm recession, if it continues, can very well lead to another financial crash such as occurred in 1920 and again in 1929-30.

Low farm prices preceded both of those crashes, and it was not until farm prices and income had been restored to approximate equality that the rest of the nation recovered from the depression.

The question that bothers folks in this area is whether farm income can be bolstered in time to head off another crash.

When farmers cut down on their buy-

ing, local merchants stop or reduce their orders to the wholesaler. When goods pile up in wholesalers' warehouses, they cut down on their orders to the manufacturer.

When manufacturers' orders get low they begin to lay off workers, and when workers are laid off they cut down on their buying. And when workers buy less, farmers have fewer customers.

That is the vicious circle that gathers momentum like a cyclone. There is a feeling here in this great industrial center of Cleveland that something like that can happen again.

The major concern of the farmers gathered here at the Grange convention is to develop a program that will enable farmers to earn a fair share of booming national prosperity. That, apparently, is to be no easy job.



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## Committee Urges Fats, Nutrients Research

USDA has recently conducted an intensive study in the role of animal and vegetable fats in human nutrition and the availability to the body of nutrients from various foods. The study was recommended by the Food and Nutrition Research Advisory Committee, which met in Washington recently and generally endorsed the current program and future plans for food and nutrition research by the Department.

## Mississippi Youth Sets Corn Yield Record

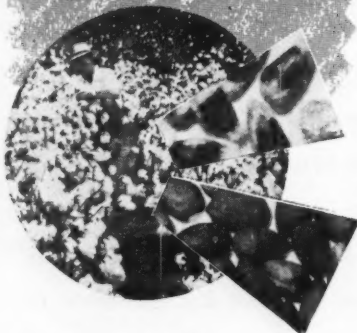
Lamar Ratliff, a Prentiss County, Mississippi, farmer, has set another world's record by producing 304.38 bushels of corn on one acre of land. The 16-year-old youth has twice previously set the record.

Ratliff planted seed corn on March 23 in rows 30 inches apart, with plants spaced eight inches apart. He fertilized the acre with 1,000 pounds of 14-14-14 mixed fertilizer, 200 pounds of ammonium nitrate under the crop, and 300 pounds of ammonium nitrate as side dressing.

The corn has been cultivated twice. Rains have been abundant, but Ratliff was ready to irrigate, if necessary.

■ R. C. SCHWARTZ, formerly Paymaster district gin manager in the Memphis, Texas, area, now is assistant gin engineer in the firm's Abilene office.

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## • Animal Disease Control Fighting Fast Travel

FAST TRAVEL which outruns the normal incubation period of nearly all animal diseases presents a special problem in disease control, according to USDA.

Last year overseas exports of cattle were greater by air than by ocean vessel. Also, more than 90 percent of imported poultry came by air and about 75 percent of imported horses, USDA reported.

In the case that insect or other possible carriers are already present, quarantine and inspection activities of USDA guard against an outbreak with which the U.S. has had no experience.

## Henry Morris Traylor, Texas Ginner, Dies

Henry Morris Traylor, operator of the McCleskey Gin at Dimmitt, Texas, died recently at his home there. Traylor operated the Mark Allen Gin in Seagraves, Texas for several years; this was his first year as operator of the McCleskey Gin.

Survivors include his wife; four daughters, Mrs. James Huckaby and Mrs. Frank Morgan, Seagraves; Mrs. C. A. Haney, Plains, and Miss Billie Jean Traylor, Los Angeles; two sons, Clovis Eugene Traylor, Los Fresnos, and Sgt. Tracey Traylor with the U.S. Air Force in Chaumont, France; three sisters, Mrs. M. T. Smith, Idabel, Okla., Mrs. W. B. Wofford, Mount Pleasant, and Mrs. Dewey Denison, Dallas; and two grandchildren.

## Medal to be Awarded for Science Contribution

The History of Science Society announced recently that it had formally accepted a grant of \$1,500 from Charles Pfizer and Co., Inc., to make possible the awarding of the George Sarton Medal for outstanding contributions to the history of science.

The award is named for Dr. George Sarton, professor emeritus of the history of science and a member of the faculty at Harvard University for 35 years. He is the author of several books and articles in the science field.

The first award of the Sarton Medal will be made Dec. 29 at the organization's annual meeting in Washington, according to Dorothy Stimson, president of the Society.

## Determining Oil Content Subject of Publication

"A Rapid Method for Determining the Oil Content of Cottonseed" is the title of a new publication issued by USDA's Cotton Division. Authors are Marion E. Whitten and Charles E. Holaday.

A dielectric method for rapid determination of the oil content of cottonseed is described by the authors, who say that it is practical and accurate and sufficiently rapid for use in measuring the oil content of small lots of cottonseed at gins. They recommend that the dielectric meter and cell be redesigned for commercial manufacture and tested thoroughly in the field.

—Presenting—

**Frank B. Caldwell**

Jackson, Tenn.



FRANK B. CALDWELL, president of Independent Oil Mill, Jackson, Tenn., is a native of Chicago, where he was born March 26, 1890. He graduated from Cornell University with a degree in mechanical engineering in 1912 and was a major in the Coast Artillery in the first World War.

Caldwell served as vice-president of H. W. Caldwell and Son Co., Chicago, manufacturers of conveying machinery; and later was vice-president of Link-Belt Co., which purchased the Caldwell firm in 1921. He built Independent Oil Mill at Jackson in 1935 and has been its president since.

His varied activities have included serving as chairman of the board of Second National Bank, president of West Tennessee Gas Co., vice-president of McCowat Mercer Press, Inc., director of Church and LaFayette Building, Inc., all of Jackson. Caldwell also has been, at various times, president of the Jackson Chamber of Commerce, Rotary Club, Planning Commission and Golf and Country Club; senior warden of St. Luke's Episcopal Church and president of the Episcopal Endowment Corporation of the Diocese of Tennessee.

Caldwell is a director of National Cottonseed Products Association, chairman of the public relations committee, and a member of the insurance committee.

He married Elizabeth Sullivan of Jackson in 1917. A son, Frank B. Caldwell, Jr., is secretary and manager of Independent Oil Mill; and there are two daughters, Mrs. Elizabeth C. Butler, Jackson, and Mrs. Ann C. Fabens, Detroit; and five grandchildren.

## J. A. Rogers, Accountant, Has Office in Aberdeen

Joel Acker Rogers, certified public accountant, has announced the removal of his office from Jackson to Aberdeen, Miss. Associated with the cottonseed crushing industry for many years until he retired as secretary of the Mississippi Cottonseed Crushers' Association in 1954, Rogers has many friends who will wish him success at his new location.



## Hurried Arkansas Farmers Machine-Harvesting

Due to the bumper cotton crop and lack of adequate local labor, farmers in St. Francis County, Arkansas, have been forced to change quite suddenly to machine-harvesting.

From 70 to 80 percent of the cotton being ginned at the new Forrest City Gin Co. is machine picked, Hal Cook, gin manager said. At the Modern Cooperative Gin, about 60 percent is machine-picked, according to Manager Eugene Ferguson.

"And," he said, "even that will probably be increased in the next week or so."

Cost for picking a bale by hand ranges from \$50 to \$55, while charges for machine-picking run about \$30 per bale. Although high-grade, hand-picked cotton brings around three cents per pound more, farmers still show an actual saving by using the machines, they report.

The fast harvesting of the machines is flooding the gins, many of which are running on 24-hour schedule. "By the time we finish up a day's work, it's five in the morning, and more folks are bringing in their loads of cotton," said one ginner.

G. J. Greene, county agent, said, "We need to get our cotton out early to keep up a high quality. We don't need any more of this ratty, dogtail cotton such as we get late in the season. We've got enough of inferior cotton."

## Speakers Are Listed for New Mexico Meeting

The New Mexico Grain and Feed Dealers Association will meet in Albuquerque at the Hilton Hotel on Jan. 15-17.

E. C. Holcombe, advertising manager of the special products division of the Borden Co., New York City, will speak on feed sales and promotion, with emphasis on retail advertising.

Dr. Roger B. Corbett, president of New Mexico A. & M. College, will also speak.

Dallas Rierison, New Mexico A. & M., will discuss his department which supervises feed, fertilizer, seed and other products, and is now active in control measures to protect the state against the khapra beetle.

## Other Buildings Damaged, But Mill Escapes Fire

Fire recently burned the main cottonseed storage warehouse and the fertilizer plant of Laurel Oil & Fertilizer Co., Laurel, Miss., but the oil mill proper and other warehouses escaped, according to D. P. Granberry, secretary and treasurer. He reports that the efficiency of the mill was not impaired in any way.

## Fire Damages Seminole Gin

Fire damaged the R. L. Massey Gin at Seminole, Texas, on Nov. 8, temporarily stopping operations. The fire started in the waste chute at 11:40 p.m. and was brought under control in about two hours. Cotton in the yards was protected from the fire by a covering of snow.

## Tennessee Winter Course In Agriculture Outlined

The third annual University of Tennessee winter course in agriculture is to be held Jan. 9 to Feb. 17, 1956, and is expected to draw a larger enrollment than in preceding years, according to Professor Troy Jones, college of agriculture.

The six weeks course is open to any young man or woman, 18 years old or above, who has had some experience in agriculture. There is no entrance examination, nor is a high school diploma required. Classes include study of pasture and forage crops, fertilizers and land use, feeding farm animals, farm machinery and economics of farming.

Also in the course will be dairy cattle management, beef cattle management and planning and constructing farm buildings.

## Solvent Plant Installed

The Lake County Oil Mill, Tiptonville, Tenn. has completed erection of a new solvent extraction plant for the processing of cottonseed, according to P. T. Pinckney, vice-president and manager. Plant operations were started on Nov. 7.

The machinery and equipment purchased from the French Oil Mill Machinery Co. of Piqua, Ohio, was installed by their erecting engineer, G. R. Greenbank, assisted by E. M. Beatty, superintendent of the Lake County Oil Mill.

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THE  
COTTON GIN  
AND  
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## Effects of 2,4-D on Cotton

(Continued from Page 12)

on lateral branches may also be malformed.

Although the leaf malformations indicated here are very characteristic of 2,4-D, other compounds have been demonstrated to produce a similar effect. Among these are such substances as the insecticides hexaethyl tetraphosphate and tetraethyl pyrophosphate. Thus such malformations, although strongly indicative, are not necessarily conclusive proof of 2,4-D injury.

• **Flower and Boll Malformation.** — Flowers may be malformed if they are being initiated at the time of 2,4-D application. Often the bracts (squares) surrounding the flower become fused, rather than being separate, with the fused bracts being smaller in total area than normal (Fig. 3) (6,10,11,27). In addition to the squares, the various flower parts may be modified. The petals may be fused, dwarfed or entirely absent. Flowers which are extremely malformed usually do not form bolls (1,20,24); bolls that develop are usually malformed (6). Malformed bolls usually take on an attenuated appearance (Fig. 3), and one or more locules may not develop seed (6,10,24).

• **Stem Injury.** — In seedling plants one indication of 2,4-D damage is the failure of the main stem to elongate (Fig. 2). In more mature plants the stem may become greatly thickened, especially the lower portion (6,10,16,23,24). In some cases fasciation of the stem developing

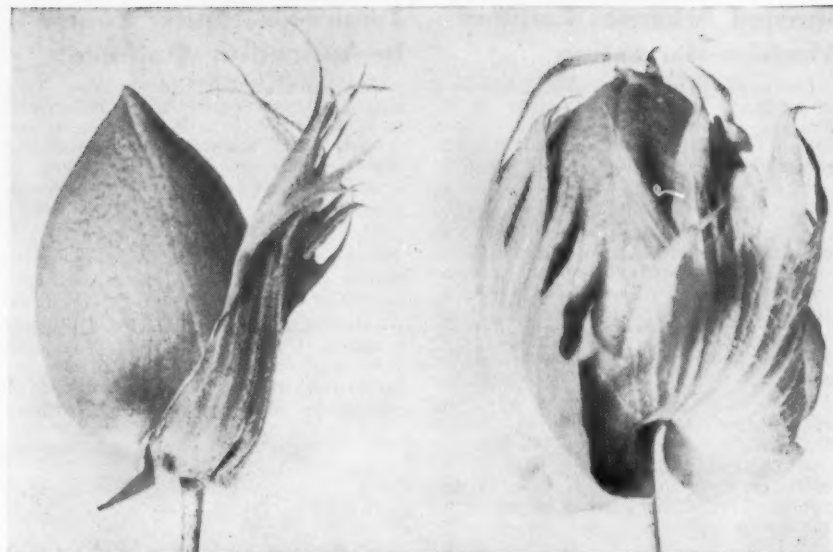


FIGURE 3.—Right—normal boll with bracts. Left—malformed boll and fused bracts resulting from 2,4-D treatment.

subsequent to 2,4-D application may also result.

• **General Effects on Vegetative Growth.** —If the 2,4-D application is sufficient to inhibit main stem elongation, renewed growth often occurs through the development of lateral branches (6,10,13,20). In some cases it has been found that even though main stem elongation was

not inhibited the development of such laterals was stimulated (13). Brown *et al.* (6) observed that where the growth of the main stalk was permanently arrested, axillary buds produced branches which grew to about normal height.

Ergle and Dunlap (13) observed that when greenhouse-grown plants with five to six main stem leaves were treated



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with 0.002 to 0.04 milligram of 2,4-D per plant a highly significant increase in main stem height, as compared to untreated plants, resulted. Applications of 0.01 to 0.04 milligram also resulted in a significant increase in the number of main stem nodes.

#### Amount Required for Injury

It is now quite apparent that for a given dosage of 2,4-D, cotton plants in the seedling stage are more sensitive than those at later developmental stages (1,16,20). Plants at a particular stage, on the other hand, show a response dependent upon the amount of growth-substance applied (Fig. 2).

Brown *et al.* (6) demonstrated that, when 0.00005 milligram of 2,4-D was applied to the cotyledons of very young seedlings, these plants later formed two to three malformed leaves and it took about four weeks for recovery. Experiments by the author (unpublished), utilizing 10 cotton varieties, gave similar results. To understand better why the tolerance of cotton to 2,4-D is so frequently exceeded by herbicide spray drift, one has only to compare this minute quantity with the amounts normally used in weed killing operations. As indicated in Table 1 the amount of 2,4-D previously mentioned as equivalent to one ounce of this growth-regulator spread over approximately 28,000 acres, whereas the rates applied in weed control vary from one to five pounds per acre.

As plants get older, larger quantities are required for a malformation response. Ergle and Dunlap (12,13) observed no malformation resulting from application of 0.002 milligram per plant to seedling plants with five to six true leaves; under their conditions they found that 0.01 milligram per plant resulted in slight leaf malformation. McElrath and Ergle (20) likewise observed leaf malformation on plants treated at the young square stage with 0.01 milligram. Under field conditions in Mississippi, Goodman (16) and Hutchins (18) observed that slight malformation was caused in seedlings by about 0.001 pound per acre, which appears to be a slightly greater

quantity required to produce malformations at this stage than that observed by the above workers (Table 1).

Table 1. Conversion table for comparison of 2,4-D dosages of mg./plant basis with lb./acre applications.\*

mg./plant	1 ounce/no. acres	lb./acre
0.00005	28,000	0.0000021
0.0001	14,000	0.0000042
0.002	700	0.000086
0.01	140	0.00043
0.02	70	0.00086
0.04	35	0.0017
1.0	1.4	0.043
10.0	0.14	0.43

\* Conversions calculated assuming 20,000 cotton plants per acre.

Although Staten (27) found that 0.01 milligram per plant was sufficient to cause injury to plants in the flowering stage, this did not prove sufficient in the experiment of McElrath and Ergle (20). Although the least susceptible plants to 2,4-D injury, so far as the production of leaf malformation is concerned, are those in later stages of development, seed produced by these plants may be significantly affected (14,16,20). This type of injury will be discussed later.

In spite of the fact that cotton is very sensitive to minute quantities of 2,4-D, relatively large amounts are normally required to kill plants. Brown *et al.* (6) have indicated that the amount required to kill cotton seedlings varies between 0.15 and 1.0 pound per acre, the exact quantity varying with size of the plant, rapidity of growth and method of application. Epps (11) reported that 0.5 pound per acre killed cotton plants in the early square stage within five weeks; plants treated in the early boll stage with approximately the same amount of 2,4-D by McElrath *et al.* (24) were not killed, although the leaves died. Thus, as was true in the leaf malformation response, it appears that as the cotton plants get older more 2,4-D is required to cause the same response.

An early report by Dunlap (10) indicated that Deltapine variety seemed less susceptible to 2,4-D injury than Stoneville 2B. Brown's observations indicated no apparent difference between Paula and Acala varieties (7). Experiments by the author (unpublished), utilizing 10 varieties, including both Sea Island and American Upland types, indicated that a very slight difference in varietal sensitivity probably does exist. Although certain varieties tend to possess slightly greater resistance to 2,4-D than others, it is very doubtful that this is of any serious consequence in injury of cotton because all varieties are extremely sensitive.

Whether the 2,4-D formulation is of any significance in injury of cotton is not known. Goodman *et al.* (17) have reported that in the treatment of field-grown seedling cotton the amine salt caused slightly greater morphological effects and a greater reduction in yield than the butyl or isooctyl esters. The yield differences were not significant. When plants were treated at the flower-early boll stage, however, the above response was not observed. McElrath and Ergle (22) indicated the formulation had little effect on the lint properties of seed cotton from plants damaged by 2,4-D. Although the literature contains data indicating that certain 2,4-D formulations are more effective than others, to the author's knowledge such has not been established in respect

to cotton. It may be that some of the apparent discrepancies in the results of different workers utilizing essentially the same levels of application but different 2,4-D formulations are accounted for on this basis. Before this question can be resolved additional experimentation will be required.

#### Recovery From 2,4-D Effects

The rate at which plants recover from the effects of 2,4-D is probably primarily dependent upon the rate of plant growth and the amount of growth-regulator applied. With dosages which do not result



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in cessation of main stem growth, the more vigorous the growth the sooner the plants will recover. If plant growth is limited by environmental factors the malformation symptoms may be extended over a much longer period. The effects of environmental conditions become apparent upon examination of the recovery data found in the literature. Epps (11) in Louisiana, for example, observed that cotton plants treated in the early square stage with 0.05 pound per acre recovered in about five weeks whereas Arle (1) in Arizona found that plants treated at a similar stage of development with much less 2,4-D (about 0.0083 pound per acre) required nine weeks for recovery.

Arle (1) as well as others (6,24) have observed that as the amount of 2,4-D applied at a particular developmental stage is increased, the length of time required for recovery is extended. Goodman (16) found that if the stem was killed before the plant was tall enough to have fruiting branches, recovery took much longer than when the tip was killed after several such branches had formed. Brown *et al.* (6), however, found that seedlings recovered faster than older plants.

Reports on other plants indicate that cotton is different from most species in the length of time the 2,4-D stimulus exerts its effects within the plant. While in most plants studied the effects of 2,4-D are not long continuing, with only the young tissues present at the time of application being affected, it now seems established that such is not the case in cotton (15,19,20,21,22). McIlrath and co-workers have demonstrated that the 2,4-D stimulus may persist in

actively growing plants and cause injury for more than six months. As might be expected, the degree of persistence is determined by the amount of 2,4-D applied, with greater dosages giving longer persistence. Whether this persistent stimulus is actually 2,4-D or a derivative thereof has not been clearly established. Perhaps one of the most serious consequences of such persistence is the effect this stimulus may have on subsequently formed seed.

#### Effects on Seed

It has been demonstrated that seed produced in bolls initiated as long as eight weeks after 2,4-D applications of 0.1, 1.0 or 10.0 milligrams per plant may exhibit injury if little vegetative growth has occurred in the interim (23). The period in which the 2,4-D stimulus will persist in the plant and appear in subsequently formed seed embryos is probably determined largely by the extent of vegetative growth following application and prior to the formation of flowers. If vegetative growth occurs over a relatively long period after 2,4-D application and prior to seed formation, it appears that the stimulus is exhausted in vegetative growth and little or no injury to embryos results. It likewise appears that if vegetative growth is actually stimulated by 2,4-D treatment a relatively short interval may occur between application and fruiting and still have most of the stimulus exhausted in vegetative meristems with little carried over to the embryos. Thus concerning seed damage, it is likely that little or no injury will occur to the seed embryos if the plants are subjected to small quantities of 2,4-D in the seedling

and perhaps early square stages (23). Even small applications at the flowering or later stages, however, are quite likely to damage the seed.

Ergle and McIlrath (14) have shown that applications of 1.0 milligram per plant at the fruiting stage (oldest bolls 15 days) resulted in a 65 percent reduction in germination of seed produced by such plants and those seeds which germinated produced seedlings exhibiting malformations which impaired normal growth. (Fig. 4). Less than 30 percent of such seedlings survived beyond this stage. Although an application of 0.1 milligram per plant in the fruiting stage resulted in only a 4 percent reduction in seed viability, about 40 percent of the resulting seedlings showed detrimental malformations. Very large quantities of 2,4-D applied in the early boll stage may



FIGURE 4. — Cotton seedlings produced from seed of plant treated at boll stage with 1.0 milligrams 2,4-D.

result in all seeds aborting and the bolls failing to develop (23). As pointed out earlier, the malformation of leaves by 2,4-D is not necessarily correlated with seed damage, for treatment at the fruiting stage often does not result in any immediate malformation of leaves.

Several workers have noted that seeds which have been injured by 2,4-D applied to the parent plant show a slower rate of germination than uninjured ones (10,14,25). Seedlings exhibiting detrimental malformations usually had a much lower rate of survival (14,25). The lowered survival rate appears, at least in part, to be the result of the inability of such seedlings to develop an adequate root system (10,14,25). Randall (25) observed in such seedlings that primary root development was often completely absent, these plants were fed entirely by secondary roots.

One of the characteristic symptoms of slight 2,4-D injury to the seed is that upon germination the seedling has a swollen hypocotyl close to the root tip (6,10,25). Such seedlings may or may not exhibit malformation of the true leaves. McIlrath *et al.* (23) indicated an apparent correlation between the degree of leaf malformation and root injury. Seedlings with only slight leaf malformation developed about as many roots as undamaged seedlings but the roots were shorter and swollen. Seedlings with severe leaf malformations (fusion of cotyledons or true leaves—Fig. 4) produced few or no lateral roots.

Epps (11) found that the seed index was reduced when fruiting cotton plants were treated with 2,4-D at the rate of 0.01 to 0.2 pound per acre. McIlrath and Ergle (22), however, reported no reduction in seed weight resulting from applications of 1.0 milligram to plants in the early fruiting stage (Table 1).

#### Effects on Yield of Seed Cotton

At various times it has been indicated that the reduced yield of cotton resulting from 2,4-D damage is a consequence of increased shedding of squares and

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flowers. Experiments by the author (unpublished) as well as the observations of others (10,27), have indicated that such is not the case. The author has observed that applications of 0.0001 to 10.0 milligrams per plant caused no increase in shedding but, rather, at levels above 0.05 milligram shedding was actually reduced. At the higher levels the squares and flowers present on the plant were killed (but not abscised) and thus did not develop and produce bolls. The resulting reduction in percentage boll set in one experiment at 0.1, 1.0 and 10.0 milligrams per plant was 45, 70 and 80, respectively. Staten (27) has indicated that small dosages of 2,4-D produced no noticeable difference in shedding of fruit, and Rakitin *et al.* (24) observed a reduction in boll drop of plants treated at the flowering stage. Goodman *et al.* (17) have indicated that, under conditions of moisture stress, 2,4-D appeared to enhance shedding or death of fruit to a greater degree than when plants were making vigorous vegetative growth.

Ergle and Dunlap (13) found that applications of 0.002 to 0.02 milligram of 2,4-D to greenhouse-grown seedlings (five to six true leaves) in Texas did not significantly alter the number of flowers produced but that 0.04 milligram reduced the flowers by 33 percent. An application of 0.04 milligram significantly reduced boll set by 53 percent and the yield of seed cotton by 58 percent as compared to untreated plants. Goodman (16), however, found that yield of field-grown cotton in Mississippi was not appreciably altered by an application of approximately the same amount (0.001 pound per acre). Likewise Arle (1), working under field conditions in Arizona, found that applications of about 0.0083 to 0.0333 pound per acre had no significant effect on yields when applied at the early square stage. He found a significant reduction, however, when about 0.0167 and 0.0333 pound per acre were applied to plants in the flowering stage and when 0.0333 pound per acre was applied to fruiting plants. Epps (11) observed in Louisiana that yield was seriously reduced by as little as 0.01 pound per acre when applied at the fruiting stage. Baskin (2), in Virginia, noted significant reductions in yield at all rates down to 0.0024 pound per acre with the greatest reduction in yield when the 2,4-D was applied during the flowering stage. In Goodman's experiments, however, he found that with applications of over 0.01 pound per acre the greatest reduction in yield occurred when plants were treated at the seedling or square stage (16,17). Arle (1) observed that total yields were least affected by 2,4-D applications during the early square stage. Even though there is no uniformity of agreement as to the most susceptible stage for the reduction in seed cotton yield, most workers concede that the least reduction is likely in plants treated at the fruiting stage (1,16,17). Even during this stage, however, significant reductions may occur with high rates of application.

The above data appear to be somewhat contradictory as to the effects of a given level of 2,4-D application on seed cotton production. Thus it becomes obvious that the effects of 2,4-D on yield are not controlled alone by the rate of application but rather are strongly influenced by other factors. Without doubt environmental factors

which tend to influence plant growth exert a strong influence on the response the plant will exhibit to a given application of 2,4-D. Goodman (16) indicated that under his environmental conditions in Mississippi, it appeared that slight to moderate malformation of leaves at the seedling stage would not markedly alter the yield, but if a decrease in the rate of stem growth occurred the amount of seed cotton would be reduced. If there was no interruption in growth in height of the plants treated at the square and flowering stages, he likewise predicted that yield would not be reduced. It is doubtful that such considerations hold under all environmental conditions, for Ergle and Dunlap (13) found that even though main stem growth was not inhibited a significant reduction in the yield of seed cotton resulted.

It may well be that plants can exhibit prominent symptoms of 2,4-D injury and yet not show any reduction in yield (13,16). It must be emphasized, how-

ever, that the differences in levels which produce malformations and those which influence yield may be very small. An apparent fact from these observations is that additional research is required before an adequate correlation of reduction in yield can be made with malformations, plant growth, and environmental factors.

Temporary cessation of growth is an important factor which should not be overlooked. With such inhibition of growth the seed cotton tends to be produced later in the season when the destructive boll weevils and worms attain their highest population and moisture stress usually becomes more predominant. Both insect damage and reduced moisture are serious considerations to cope within gaining maximum cotton yield (6,10,11,17). That the maturity of cotton is delayed by 2,4-D application has been indicated by numerous investigators (1,6,10,13,16,17). The extent to which this maturity is delayed depends

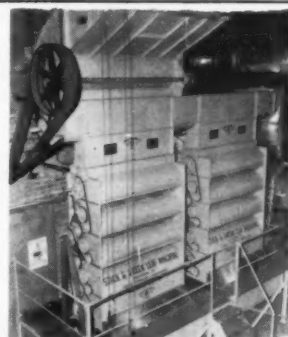
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upon the several considerations which have previously been discussed.

Some cotton growers have suspected increases in yield followed light applications of 2,4-D, and the observations of several workers have indicated slightly greater yields in certain instances (1,11,13,16). Where statistical analyses were made, however, these increases did not prove to be significant. In an extensive field experiment in 1949 at College Station, Texas, designed to check this reported response, Ergle (unpublished) found that application of 0.005 milligram per plant increased the number of flowers in a highly significant manner but there was no corresponding effect on yield.

#### Effects on Chemical Composition

To the author's knowledge the report of Ergle and Dunlap (13) is the only one dealing with the effects of 2,4-D on the composition of the vegetative organs of the cotton plant. They found that whereas application of 0.002 to 0.04 milligram of 2,4-D to plants (five to six leaves) tended to diminish the reducing sugar content of the main stem leaves, it resulted in an increase in nonreducing sugars. Thus the total sugar content of the leaves was not appreciably altered. There was no apparent correlation between the degree of leaf injury and starch content except with the 0.04

milligram treatment where the leaves were extremely malformed and the starch content was 42 percent below that of the leaves of untreated plants. There were small but consistent increases in hemicellulose and cellulose with increased 2,4-D injury. Total carbohydrate content also tended to increase with higher 2,4-D applications. There was a slight increase in total nitrogen, accounted for almost entirely in the soluble fraction. The higher applications resulted in a reduction in the total organic acid content of the leaves.

Epps (11) has reported about a 21 and 45 percent reduction in the oil content of seed from plants treated at the fruiting stage with 0.05 and 0.2 pound per acre, respectively. McIlrath and Ergle (22) found no such reduction when fruiting plants were treated with 1.0 milligram per plant (Table 1). These workers have indicated that the most likely reason for the difference between their results and those of Epps is to be accounted for in the differences in climatic conditions under which the two experiments were conducted. Though McIlrath and Ergle (22) found no difference in oil content, they did observe that oil from seeds produced by injured plants contained a significantly lower free fatty acid content than that from seeds of untreated plants.

These workers found no significant

difference in carbohydrate or nitrogen fractions of the seeds from treated and untreated plants (22). Epps (11) also reported no differences in seed nitrogen under his conditions.

#### Summary

It is well established that cotton is extremely sensitive to 2,4-D. For a given dosage, seedlings are injured more severely than older plants. The malformations induced by 2,4-D have been well characterized, permitting a relatively high degree of accuracy in diagnosing such injury. Environmental conditions under which cotton is grown undoubtedly influence the degree of injury, the rate of recovery, the magnitude of reduction in seed cotton yield and amount of seed damage. Before an adequate correlation of environment with these factors can be made, however, additional research will be required. Irrespective of the conditions under which cotton is grown, only a small amount of 2,4-D is required to reduce seed cotton yield. There are no data at present to statistically substantiate claims of increased yields from light applications.

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## Former Briggs-Weaver Co. Head Dies in Dallas

Jack B. Dale, former president of Briggs-Weaver Machinery Co., died Nov. 9 at his home in Dallas. A native of Bonham, Texas, Dale was president of Briggs-Weaver from 1931 to 1945; was vice-president of the Gin Machinery and Supply Association in 1940 and for several years thereafter, and served on the committee arranging incorporation of



JACK B. DALE

the Association; and was president in 1933-34 of the Oil Mill Machinery Manufacturers and Supply Association.

He also was a past president of the Dallas Manufacturing & Wholesalers Association, the Southern Supply & Machinery Distributors Association and the Texas Christian Endeavor Union and the Texas Manufacturers Association.

He was a member of the Dallas Sales Executive Club, an elder in the East Dallas Christian Church and a regional chairman of the American Machine Tool Distributors Association.

Dale is survived by his wife; three sons, James Dale of Dallas, Jack B. Dale, Jr. of Houston and the Rev. Jerome T. Dale of Port Lavaca; three brothers, Donald Dale, John T. Dale and James D. Dale, all of Dallas; three sisters, Mrs. T. B. Cochran of Dallas, Mrs. John Skiles of Summit, N.J., and Mrs. Thornton Emmons of Columbus, Ohio.

■ W. D. WATKINS, assistant general manager, Western Cottonoil Co., is a member of Abilene, Texas, city planning commission, and chamber of commerce agriculture and livestock committee. He also is a director of Texas Technological College and Texas Cottonseed Crushers' Association, and vice-president of Texas Cotton Ginners' Association.

## Logging Effects on Streams Studied

A PROJECT which in 10 years or so may increase the San Joaquin Valley's water supply by as much as 10 percent has been started in that high Sierra district.

The U.S. Forest Service's forest and range experiment station has reactivated its work in the virgin fir along Teakettle Creek on Patterson Mountain east of Fresno to determine if timber management practices will improve streamflow.

"During the next few years, we plan to measure snowfall and streamflow in the fir forest," Dr. George Jemison, director of the service, explained. "Later, experimental logging will be undertaken to determine how the timber should be cut to reduce melting of snow in the winter, prolong the spring melting of the snowpack and increase the annual runoff."

Considerable study has been made of snowpack data gathered by the U.S. Weather Bureau and the crops of engineers in the Sierra. They have learned the size and arrangement of natural openings in the forest have had a marked effect on the accumulation and melt of snow in California's mountains.

Eventually, through the Sierra project, foresters hope to be able to recommend a pattern of timber harvesting which is suitable for growing timber crops and which also improves the stream flow from melting snow.

"Recently Congress appropriated more funds for the study, so we will use some of it to build four small watersheds for experimental purposes," Jemison reported.

"While snowfall and streamflow are being studied, Henry W. Anderson, (appointed to run the project) and his assistants also will be checking the amount of water in the snow, and the drifting, melting and evaporation of the snow at this, and one or two other locations in the Sierras," Jemison said.

The four watersheds will determine which cutting method is best for logging operations.

## Georgia Cotton Contest Prizes To Be Awarded

Plans are being made for the awards luncheon in the Georgia Five-Acre Cotton Contest, sponsored by Georgia Cottonseed Crushers' Association, to be held at noon Dec. 8 at the Henry Grady Hotel, Atlanta.

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CALENDAR							
Conventions • Meetings • Events							
12	13	14	15	16	17	18	

• Dec. 15-16—Cotton Production Conference sponsored by National Cotton Council. Hotel Peabody, Memphis. For information, write National Cotton Council, P. O. Box 9905, Memphis 12.

1956

• Jan. 16-18—Southern Weed Conference. Hotel Jung, New Orleans. Dr. E. G. Rodgers, Florida Experiment Station, Gainesville, secretary-treasurer.

• Jan. 19-21 — Texas Cotton Ginners'

Association Directors and Allied Industries Meeting. Corpus Christi, Texas. Ed H. Bush, 3724 Race Street, Dallas, executive vice-president.

• Jan. 30-31—National Cotton Council annual meeting. Biloxi, Miss. For information, write National Cotton Council, P. O. Box 9905, Memphis 12.

• Feb. 5-7—Texas Cooperative Ginners' Association, Texas Federation of Cooperatives and Houston Bank for Cooperatives joint annual convention, Austin, Texas. For information, write Bruno E. Schroeder, 307 Nash Building, Austin, executive secretary.

• Feb. 14-15—Southeastern Gin Suppliers' Exhibit. Biltmore Hotel, Atlanta. Sponsored by Alabama-Florida Cotton

Ginners' Association, Carolinas Cotton Ginners' Association and Georgia Cotton Ginners' Association. For exhibit information, write Tom Murray, Room 714, Henry Grady Building, 26 Cain Street, NW, Atlanta, or Clifford H. Hardy, P. O. Box 512, Bennettsville, S.C. Concurrent with annual conventions of Alabama-Florida, Carolinas and Georgia ginners' associations.

• Feb. 14-15—Alabama-Florida Cotton Ginners' Association convention. Biltmore Hotel, Atlanta. For information, write Tom Murray, executive vice-president, Room 714, Henry Grady Building, 26 Cain Street, NW, Atlanta. Concurrent with Southeastern Gin Suppliers' Exhibit.

• Feb. 14-15—Carolinas Ginners' Association annual convention. Biltmore Hotel, Atlanta. For information, write Clifford H. Hardy, 400 Broad Street, Bennettsville, S.C., executive secretary-treasurer. Concurrent with Southeastern Gin Suppliers' Exhibit.

• Feb. 14-15—Georgia Cotton Ginners' Association annual convention. Biltmore Hotel, Atlanta. For information, write Tom Murray, executive vice-president, Room 714, Henry Grady Building, 26 Cain Street, NW, Atlanta. Concurrent with Southeastern Gin Suppliers' Exhibit.

• March 6-7—Fifth Annual Western Cotton Production Conference. Fresno Hacienda, Fresno, Calif. For information, write National Cotton Council, P. O. Box 9905, Memphis, Tenn.

• March 9-10—Oklahoma Cotton Ginners' Association annual convention. Skirvin Hotel, Oklahoma City. J. D. Fleming, Jr., 1004 Cravens Building, Oklahoma City, secretary-treasurer.

• March 12-13—Cottonseed Processing Research Clinic. Southern Regional Research Laboratory, New Orleans. Sponsored by Valley Oilseed Processors' Association and USDA. C. E. Garner, 1024 Exchange Building, Memphis, Association secretary.

• March 12-14—Midsouth Gin Supply Exhibit. Midsouth Fairgrounds, Memphis. For information, write W. Kemper Bruton, P. O. Box 345, Blytheville, Ark. Arkansas-Missouri, Louisiana-Mississippi and Tennessee ginners' associations sponsor the exhibit and will hold their annual convention concurrently with it.

• March 12-14—Arkansas-Missouri Cotton Ginners' Association annual convention. Memphis. W. Kemper Bruton, P. O. Box 345, Blytheville, Ark., executive vice-president. Concurrent with Midsouth Gin Supply Exhibit.

• March 12-14 — Louisiana-Mississippi Cotton Ginners' Association annual convention. Memphis. Gordon W. Marks, P. O. Box 1757, Jackson, Miss., secretary. Concurrent with Midsouth Gin Supply Exhibit.

• March 12-14—Tennessee Cotton Ginners' Association annual convention. Memphis. W. T. Pigott, Milan, Tenn., secretary-treasurer. Concurrent with Midsouth Gin Supply Exhibit.

• March 18-21—National Peanut Council annual convention. Jung Hotel, New Orleans. For information, write National Peanut Council, DuPont Circle Building, Washington, D.C.

• March 27 — National Cotton Ginners' Association annual meeting. Dallas, Texas. Clifford H. Hardy, Bennettsville, S.C., executive secretary. Will be held in con-



Note the hot air on the cleaners is blown through the cotton by a series of nozzles (similar to the air blast nozzles on a gin stand), forcing the dirt, leaf trash and stems through the screen. Cleaners made in any number of cylinders to meet local conditions.

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junction with Texas Cotton Ginners' Association annual convention.

• March 26-27-28—Texas Cotton Ginners' Association annual convention. State Fair Grounds, Dallas, Texas. Ed H. Bush, 3724 Race Street, Dallas, executive vice-president. For exhibit space, write R. Haughton, president, Gin Machinery & Supply Association, Inc., 3116 Commerce Street (P. O. Box 7985), Dallas.

• April 9-10—Valley Oilseed Processors' Association annual meeting. Buena Vista Hotel, Biloxi, Miss. C. E. Garner, 1024 Exchange Building, Memphis, secretary.

• April 12-13—National Cotton Compress and Cotton Warehouse Association annual convention. Galvez Hotel, Galveston, Texas. John H. Todd, 1085 Shrine Building, Memphis, Tenn., executive vice-president.

• April 22-25—American Oil Chemists' Society spring meeting. Shamrock Hotel, Houston. For information, write Society headquarters, 35 East Wacker Drive, Chicago.

• May 21-22—National Cottonseed Products Association convention. Statler Hilton Hotel, Dallas. John F. Moloney, 19 S. Cleveland Street, Memphis 4, secretary-treasurer.

• June 3-6—National Oil Mill Superintendents' Association annual convention. Plaza Hotel, San Antonio, Texas. H. E. Wilson, P. O. Box 1180, Wharton, Texas, secretary-treasurer.

• June 4-5—North Carolina Cottonseed Crushers' Association and South Carolina Cotton Seed Crushers' Association joint annual convention. Ocean Forest Hotel, Myrtle Beach, S.C. Mrs. M. U. Hogue, 612 Lawyers Building, Raleigh, secretary-treasurer, North Carolina association; Mrs. Durrett L. Williams, 609 Palmetto Building, Columbia, secretary-treasurer, South Carolina association.

• June 6-8—Tristates Oil Mill Superintendents' Association annual convention. Biloxi, Miss. For information, write Roy Castillow, 20 Lenon Drive, Little Rock, Ark., secretary-treasurer.

• June 10-12—Texas Cottonseed Crushers' Association annual convention. Statler Hilton Hotel, Dallas. Jack Whetstone, 624 Wilson Building, Dallas, secretary-treasurer.

• June 16-19—Alabama-Florida Cottonseed Products Association and Georgia Cottonseed Crushers' Association joint annual convention. Lookout Mountain Hotel, Lookout Mountain, Tenn. J. E. Moses, 318 Grand Theatre Bldg., Atlanta, secretary of Georgia Association; C. M. Scales, 322 Professional Bldg., Montgomery, Ala., executive secretary, Alabama-Florida Association.

• June 20-22 — Mississippi Cottonseed Crushers' Association annual convention. Buena Vista Hotel, Biloxi, Miss. Gordon W. Marks, P. O. Box 1757, Jackson, Miss., secretary.

• Sept. 23-26—American Oil Chemists' Society fall meeting. Sherman Hotel, Chicago. For information, write Society headquarters, 35 East Wacker Drive, Chicago.

### Arkansas Group to Meet

The Arkansas Feed Manufacturers Association will meet Dec. 2-3 at the Arlington Hotel, Hot Springs, Ark. James Dunaway, secretary, announced the dates.

## • All Time High Hit by Soybean Production

WORLD PRODUCTION of soybeans in 1955 is expected to reach an all-time high of almost 764 million bushels on the basis of preliminary information now available to the Foreign Agricultural Service. This forecast represents an increase of six percent from the 1954 revised estimate of 717 million bushels and is roughly two-thirds larger than average output in prewar years.

Soybean production in the U.S. is indicated at a record 374,816,000 bushels from an estimated 18,397,000 harvested acres, over two-thirds of the estimated world increase. This is an increase of nine percent from the previous record in 1954 and 57 percent from the 10-year (1944-53) average. With continued restrictions on acreage planted to corn, wheat, and cotton, a record 19,860,000 acres of soybeans were planted for all purposes.

For the first time since 1943, production of soybeans in Canada has failed to exceed that of the previous year. The 1955 crop, forecast at 4,708,000 bushels, is about five percent below last year's record 4,953,000 bushels, but is 67 percent above the 10-year (1945-54) average. The decrease in this year's crop is due entirely to a reduction in area from 254,000 acres in 1954 to 214,000 in 1955,

average yields having increased from 19.5 bushels per acre last year to an indicated 22.0 bushels this year.

Soybean production in China-Manchuria is believed to have increased somewhat in 1955. Output may have been in the neighborhood of 330 million bushels compared with an unofficial estimate of 320 million last year. This accounts for an estimated one-fifth of the world's production. However, with an indicated shortage of vegetable oils in China, soybean exports from there probably will remain well below prewar in the year ahead.

Japan is expected to harvest a near-record crop of approximately 19 million bushels, which would exceed the 1954 outturn by about 38 percent. The increase appears to have been due to an above-average yield per acre, as the area in soybeans reportedly was slightly less than in 1953.

Production in Indonesia is forecast at roughly 15 million bushels. In Taiwan, where soybean production has expanded significantly since prewar years, a goal of 845,000 bushels was set for 1955. An output of this volume would represent an increase of more than one-fourth from last year's crop.

Brazil's soybean crop was down nine percent from 1954. An estimated 3,674,000 bushels were harvested in Rio Grande do Sul from a planted area of about 170,000 acres.

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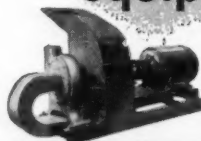
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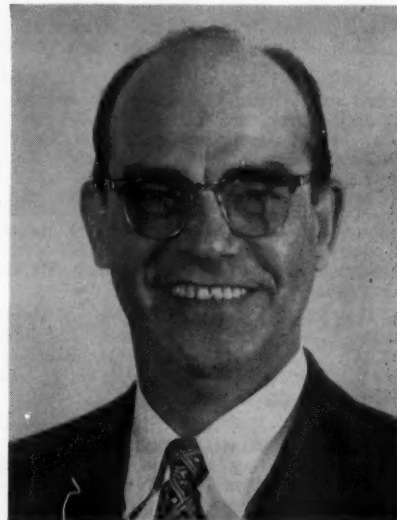
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## Ammonia Institute Will Meet in Kansas City

Addresses by agricultural leaders, panel discussions, exhibits and entertainment features are scheduled on the program for the fifth annual convention of the Agricultural Ammonia Institute, Dec. 5-6-7 at Kansas City, Mo. Jack F. Criswell, Memphis, has announced that the Muehlbach and the President will be the headquarters hotel.



JACK CRISWELL

Herbert Pike, Iowa farmer who toured Russia; H. B. Sharer, U.S. Rubber Co.; Dr. W. B. Andrews, Mississippi State College; John K. Minnoch, public relations authority; Dr. Lewis B. Nelson, USDA; and other agricultural and business leaders are listed on the program.



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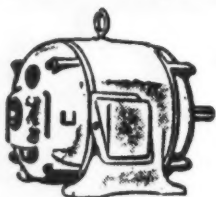
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## Cornell University Outdating Hens

Cornell University has announced a new project—marketing naked eggs—no shells.

The eggs will be sold in 12-compartment polyethylene packets, should be cheaper and will be just as good as eggs in the shell, according to L. B. Darrah. Machines—not the hens—drop the eggs into the cuplike compartments after breaking the shells. Carbon dioxide is added to maintain the quality of the eggs and a strong film is deposited over the compartments to seal them. Human hands do not touch the eggs.

According to Darrah, not only will the process lower the cost of marketing eggs and keep them fresh longer, but the housewife will not have to worry about disposing of the egg shells. She can poach or boil and serve the eggs in the individual compartments.

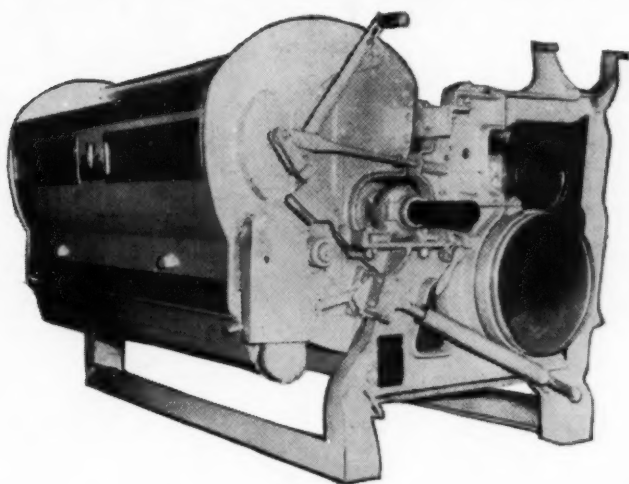
## Southern Grain Co. Leases Pom Chemical Industries

The Southern Grain Co., Atlanta, has leased the properties of the Pom Chemical Industries, Inc., and will operate the plant.

The Pom plant was originally built as a peanut oil extraction plant, but a year later was converted to processing soybeans.

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## AIR BLAST COTTON GIN WITH LINT CLEANER BUILT IN



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GULLETT LINT CLEANING GINS clean lint while you GIN, because the stream of lint at the point this Cleaning System is applied is very thin, and lint tends to extend away from the gin saws. The fringe of this lint strikes GRID BARS and loosens pin trash, leaves and motes which are readily sucked up by air, drawn in over GRID BAR by suction fan, thus removing leaves and trash, also keeping the GRID BAR clean. This Suction Nozzle is very similar to the Air Blast Nozzle that removes ginned lint from the saws and has ample capacity for removing trash, leaves and motes, making a very effective Lint Cleaner within the gin.

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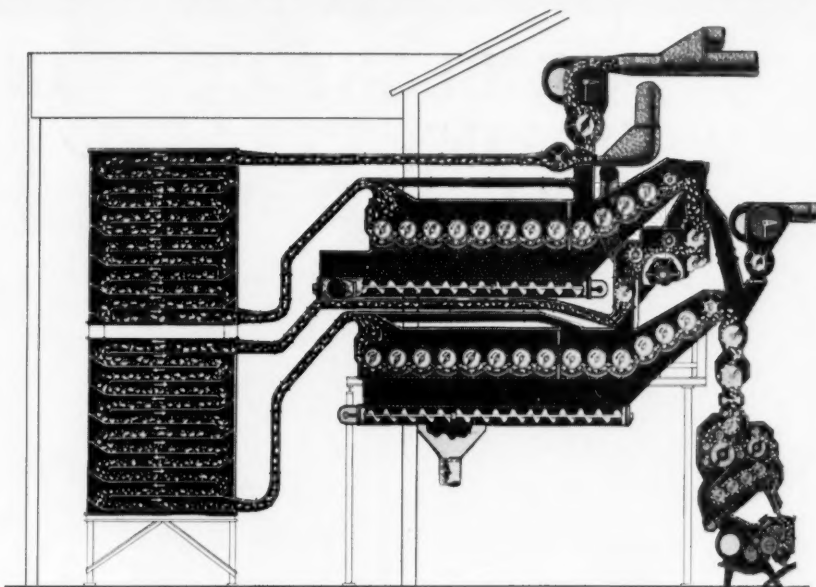
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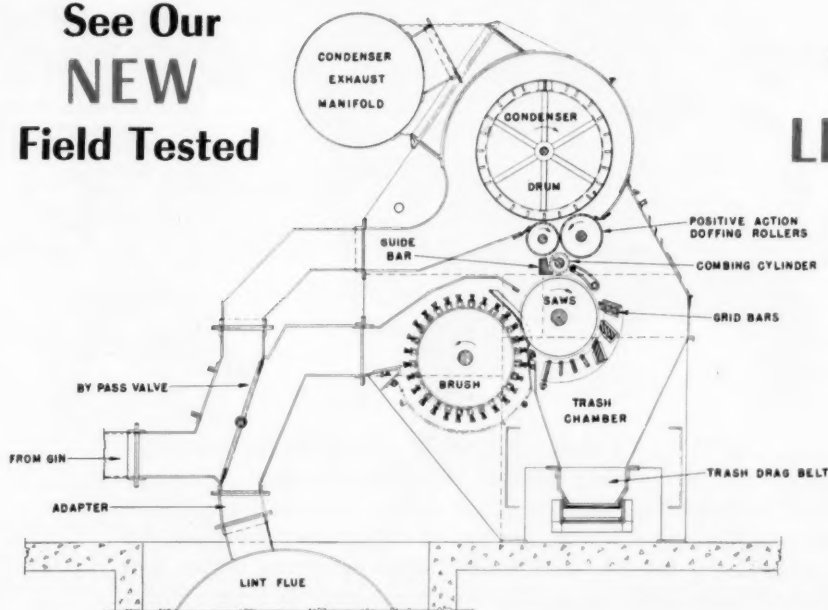


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